Agricultural College

THE

# AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

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## MARCH.

"And see where surly Winter passes off
Far to the North, and calls his ruffian blasts;
His blasts obey, and quit the howling hill,
The shattered forests and the ravaged vale;—
While softer gales succeed."

The earth is quickened into new life at the sun's approach, and awaking from the death-like sleep of winter, is refreshed for a new career. The farmer, too, has had a season of comparative rest, and goes forth invigorated and strengthened, for the duties which the season imposes. What improvements for the future, shall we bring out of the experience of the past? What advance are we prepared to make—what higher stand shall we take in the work of life, with our new strength, and skill and experience? To do well, is a good thing, but a true man is always doing better. We make a great mistake, in confining our ideas of education to the period of youth. Every one of us is being educated all the time, and no man has done yet all that he is capable of. Let young and old go on with their lessons, and do better whatever they have to do.

## WORK FOR THE MONTH.

### PLOUGHING.

The foundation of the year's work for every cultivated crop is a complete and thorough breaking and turning of the ground. One good ploughing will put the ground in better condition for cropping than three imperfectly done. Indeed no after pains can remedy the deficiency. It is of the utmost importance, then, to be prepared in every point for the proper execution of so heavy a part of the farm labour.

Turn a furrow of seven inches depth at the least, and the nearer it approaches to twelve inches, the better. There may be soils that form exceptions to the rule of deep-ploughing; and which require from some peculiarity in the sub-soil, a gradual deepening. In our own experience, we have met with none such. We have, without fear, thrown up four inches of clay sub-soil, which had never seen the light before, on the surface of a bed of ten inches, and, with moderate manuring, made the best crop of corn the land had produced within the memory of living men. We look upon a deep soil as the very first requisite of the successful cultivation of almost every crop. Summer crops, so very uncertain on a shallow-soil, are almost insured against the vicissitudes of the season in a deep one. We do not think the all-important corn-crop would fail of a good yield one year in twenty, planted on a bed of twelve inches in depth.

In order to be sure of having the land ploughed deeply, see that you have teams enough, and in proper condition for their work. Ample strength of team is of the first importance to the success of the farm operations, and any deficiency should be promptly supplied, that the advantage may be felt in the earliest and most important labour of breaking the sod-land. Each plough should have three horses for this operation. The most careful supervision should be bestowed by the master or manager, to ensure that the plough, the gearing, and every other requisite be in proper order, and that the work be not slighted by the ploughman.

Inconsiderate ploughmen, by laying off their work in short lands, consume a very large proportion of time at the turnings. There is a strong predilection on the part of negro ploughmen to work the short way of a piece of ground, when they have their choice. A little observation and calculation will show the great advantage, in time of ploughing, in long lands.

On the tobacco plantation, the tobacco ground, if in sod, should be ploughed first; it is bad practice to leave this work till after corn-planting to save the labour of a second ploughing. This crop is of too

much value to allow any risk of imperfect preparation. An early growth of plants may oblige you to hurry unduly; or a dry season may make it very difficult to get the ground properly prepared at so late a period. If all be thoroughly broken, now, there will be no difficulty, after corn-planting, in putting it in the best order as fast as the plants are ready for setting out.

OATS AND BARLEY.

These crops are usually sown upon such corn land of the past year, as was not considered fit for wheat. They are crops of secondary importance, but should have a dressing of guano or other fertilizer, sufficient to insure a growth of clover. Sow, at the very earliest time that the ground can be got in order. Put a bushel and a-half of seed to the acre—plough in with a light furrow; and sowing the clover seed immediately, follow with the roller. For a heavy crop we should put more than a bushel and a-half of seed, but thicker seeding would be prejudicial to the growth of clover.

CLOVER SEED.

If clover seed has not been sown upon wheat land, wait until the frost is out of the ground and then sow; and roll well immediately after. The rolling is very beneficial to the wheat crop. The common allowance of clover seed, a half-peck, is not sufficient to ensure a good "set." Put half as much more, and sow only on land that is tolerably sure to give a crop. It is a very useless waste to throw this costly seed upon thin light lands unless fertilized with the express design of producing clover. On all quite light lands, it is better to sow field peas, or broad-cast corn, until they are highly improved.

ORCHARD AND OTHER GRASS SEEDS.

Timothy seed should have been sown in the Fall, but may be sown now. This is the proper time for sowing orchard grass seed,—we cannot too emphatically commend this very valuable grass. It yields abundant crops of good hay—hardly inferior to timothy, if cut in proper time—starts very early in spring; grows late in Fall, making a large aftermath; endures drought well; bears close grazing, and, indeed, makes the better pasturage by close and constant cropping. It is fit to cut for hay at the same time with clover, and they should be sown together. It is not worth the expense of purchasing the seed of this grass to sow in a rotation, when it will stand but one season after the crop of small grain; but for a longer rotation,—which we think very desirable,—or for hay or standing pasture, we would not fail to have it. Two bushels of seed is not too much to ensure a good turf. If not sown thick enough it has the fault of growing in unsightly bunches; still, if clover seed be sown with it, and the condition of the ground and season favourable, a good "set" may be expected from a bushel of good seed.

TOBACCO SEED.

If any portion of your tobacco beds remain unsown, let them be prepared and sown at the earliest time you can find the ground in order. Those which have been sown early should be trodden and packed again when the frost is out of the ground. If you have ever had a cow to walk across a bed after sowing, you have probably observed that the first plants that make their appearance are in the print of her foot. Take the hint and you may profit by it. In an ordinary season, the plants in early sown beds will make their appearance about the last week of this month. About that time give a slight dressing of guano, and repeat every ten days, to force the plants on rapidly, out of reach of the fly—this is their surest protection.

HANDLING TOBACCO.

The stripping of the crop has been nearly finished, perhaps, during the very rainy winter. Tobacco in the bulks will require careful looking after, as the spring comes on. It is liable to heat and to mould, and acquire a bad smell, which it will not get rid of by any after care. Examine the bulks frequently, and whenever there is the least warmth, and, indeed, whenever you find that it is getting into high condition, that is getting soft in the bulk, it should be, at once, shaken out and hung up for a thorough drying, or shifted into a new bulk. The most expeditious and effective way of getting the crop into "condition," is to hang it up and suffer it to be well dried, and then take the opportunity when it softens sufficiently for safe handling, but before the heads get soft, to put it into a large bulk and cover with tobacco sticks and heavy weights, until you are ready to pack.

TOBACCO STALKS.

Bear in mind the value of your stalks, and keep them entirely from the weather. We made last year a better crop of potatoes, manured exclusively with tobacco stalks, than we have ever made with a free use of guano. The stalks from four acres will manure one acre, abundantly.

FENCES AND GATES.

Your fencing timber should now be in place for repairing old and making new ones. Your corn-field fence will, of course, be thoroughly repaired. If post and rail are out of your power, get at least a portion of it made with stakes and cap, in preference to the common worm fence with stake and rider. Guard against the universal propensity to maul fence rails into the most convenient size for lifting. Small rails soon shrink and warp, and last but half the time they should. Have a good well-hung, well-latched gate to every field and lot.

COWS.

Cows approaching the period of calving require special care. Remember the peculiar languor and weakness with which all animals are more or less

affected by the change from winter to spring, and guard against the danger to your cows, by ample feeding and protection from bad weather; otherwise there is great risk of loss. Exercise is good for them, but do not for the sake of the early bite of worthless watery grass, allow them to go into marshy places where they are almost sure to be mired. A half bushel a day of ruta-baga, sugar-beet, carrot, or parsnip, would be, now, especially valuable, not only to these, but to oxen, young cattle and horses. All animals begin now to crave green food, and such roots supply the demand, if you have them; if you have them not, take now the hint for the coming year. Heifers coming to the pail should have the best attention and food to make their bags spring well and foster their milking qualities.

SOWS.

Sows should be well fed with rich slops several weeks before they bring their pigs. Will not pigs coming in this month, and fed moderately with grain in a clover field or grass lot throughout the season, make cheaper bacon by Christmas, than those kept through a long cold winter, with just corn enough to keep the life in them, and allowed to shift as best they may through the remainder of the season?—Who will try the experiment?

PLASTER OF PARIS.

Have your plaster on hand and sow upon your clover when it begins to leaf out freely, and upon newly sown clover, not until the third leaf is well developed. Early in April, in this latitude, will be time enough.

CHINESE SUGAR CANE.

This plant has so well established its value, that no one who has a cow or a hog to feed can be without a small crop of it, even if he does not care to make syrup and sugar. For hogs it is invaluable, being fit for use when the heat and drought has dried up the grass, and when it is desirable they should be abundantly supplied with food. In point of economy, there is no source of supply to compare with the *Sorghum*. It is equally valuable either as summer or winter food for cows. The seed should not be planted before the middle of May, and we only remind you of it, that in your allotment of crops, you may make provision for it.

ROOT CROPS FOR STOCK FEEDING.

For an occasional change of food during winter, and for daily supply during the first six weeks of Spring, for all sorts of stock, from horses to hogs, there should be a supply of Roots. The most easily raised and most productive are sugar beet and ruta baga. We should have an acre of one or both of them for every ten head of cattle and horses. The carrot and parsnip are very valuable, but they require more care in the cultivation than the others. The carrot is considered as especially suited for a change of food for horses.

SWEET POTATOES.

This is a very valuable root crop, which is entirely too much neglected. Provide yourself, as soon as you can, with roots for planting. Four to six bushels are required to make plantings for an acre. Next month, we will give full directions for the management of the crop.

IRISH POTATOES.

Irish potatoes, for early use, should be planted without delay.

## THE NECESSITY AND VALUE OF SCIENTIFIC INSTRUCTION.

*To the Editors of the American Farmer:*

MESSRS. EDITORS:—The Advisory Board of Agriculture, met last month, and held its sittings in the Patent Office, at Washington. It was called by the Secretary of the Interior, and was composed of gentlemen, connected with agriculture, from different parts of the United States—Amongst other things to which their attention was called, they were requested to give their opinion, as to the best mode of promoting or benefitting agriculture.

So far as I could judge, there was unanimity in favour of Scientific Education, and I remarked with much satisfaction, that all those I heard speak, expressed not only their individual opinion, but the wants of the community in which they lived. Some thought that an independent agricultural bureau, having at its head a Secretary, equal in rank, &c., with the other Departments, was essential, not only for fostering and protecting agriculture, but particularly necessary to aid the treaty making power. Whilst all, as far as I could learn, were in favor of donations of lands, from the public domain to the States, on certain conditions, for the establishment of Agricultural Colleges.

The establishment of Scientific Universities in the different States, not special to agriculture alone, but including that art, (for it is based upon the Sciences,) would I think better fill the objects in view.

Some were of opinion that there should be established, within the District of Columbia, an experimental farm, attached to the Department. The establishment of a Department, and Farm, at the seat of Government, does not appear practicable in the present state of political feeling, throughout the country. Those who look upon the Federal Government as one of delegated, and constitutional powers, would undoubtedly oppose any such measure, whilst they would, I think, cheerfully advocate the donation of public lands for a purpose so essential to the advancement of all the arts, including agriculture, as scientific education, through the individual States. Indeed, if the question of donations of land, to the several States, for such a purpose, was properly presented it would, I think, pass both Houses of Congress, without a dissenting voice.

I have long been of opinion that the time would surely come, when in this country, more than in any other, the demand for scientific instruction, and that in its highest grade, would be imperative. I have seen the subject rolling on and gathering daily strength, with the diffusion of general information. It appears to me that it must be a con-

sequence of information and reflection. No one more than myself appreciates the blessings of our civilization, which are greatly due to the influence of the classics, and I believe that they will continue to have a most happy effect for all time, in their sphere—but at the same time it appears no less clear, that the sciences are destined to increase the amount of knowledge in the world, far beyond what imagination conceives. The want of adequate scientific instruction is every where felt more and more, and as population increases, and our once fertile lands are exhausted, it will become a necessity. When nature's bank refuses to honour the drafts of population for meat and bread the resources of science will be appealed to, and it will then be discovered that there is no hope out of it; nay, it is a fact already known to many, that science is the only sure foundation upon which we can depend for the increase of facts or for the recuperation of exhausted lands, or sustaining the fertility of those that are tilled.

The day is not far distant when the fertile lands in the West will all be taken up. "The unbounded West," as it has been called, is found to have limits, and much of it is known to be too sterile to support population. In the mean time population will continue to increase in an unprecedented manner, and much of the land that was once considered inexhaustible, has been worked improvidently, worn out, and thus denuded of vegetable covering, and in many instances soil abandoned, unprotected, to the devastating ravages of the atmospheric agents. This melancholy result of improvident husbandry is not limited to a few acres, but extends over entire regions. The economical gatherings of time have disappeared, but a small part has been harvested, whilst the most has been washed into gullies, thence into streams, and finally to the ocean—nature's great reservoir, where she gathers together her life resources, for the wants of future creations, perhaps of an entirely different order from those that have peopled the earth heretofore.

Those who may believe that I indulge in fancy sketches, can refer to the statistics of production in our country, and they will find, that what I have figured, is already upon us, not in one instance, or to a limited extent, but on the contrary in every State, and wherever sufficient time has elapsed to show the impoverishing effects of the course pursued, throughout the entire country. It is not surprising. These consequences are mathematically true, and as certain as the return of the seasons, or that the sun will rise and set to-morrow.

It has been known, from all time, that exhaustion follows cropping, and the heavier the draft upon the land, the sooner the result is reached.—Those who supply our cities with the springs of life, are compelled by necessity to draw their fertilizers from the offal of the cities. Thus a continued circulation is kept up, and every atom of non volatilizable matter has gone, time after time, from the field to the town, and back again to the scene of production. But to those lands which lie remote from populous towns, to which the solidified gases are carried in the shape of food, and in these days of Rail Roads and Steamboats, sometimes to a great distance, it will not pay to bring back bulky fertilizers. It then becomes a subject of anxious inquiry, how the waste is to be supplied. Independent of the gaseous portion, of which by far the greatest part of organic matter is formed, there are substances which are essential, and though they are found in comparatively small quantities, they are as necessary as the oxygen we breathe, the great supporter of life and combustion. The oxygen, hydrogen, carbon and even nitrogen, would appear to be found every where in quantities adequate to the requirements of vegetation, and so it would appear to be with other inorganic constituents of vegetable and animal life, but the simple substance, phosphorus, is sparsely disseminated; it was created once and forever, and once removed it must be replaced; without it there is no fertility, no production, no life. Cargoes of bones, are carried from different parts of the world to England, to supply the drain of population on her exhausted lands, and the fossilized droppings of the extinct Icthyosauri, are assiduously sought out, mined, ground, and applied to the land. Science has revealed their origin and composition, and what was once considered a subject of idle scientific enquiry, has become one of vital import, for we are actually drawing from the entombing rock, the droppings of an extinct race of animals, which existed an indefinitely long period before the creation of man.

The connection of phosphorus with civilization and life, is singularly interesting. Civilization and population, which were cradled in the East, have gradually followed the setting sun. It was the direction of the least resistance. Population was thinner and the soil fresh. Now that we have reached the Pacific, and a dense population covers the land beyond the ocean, the question naturally arises, where will that pabulum be found, if science fails to reveal new sources of that essential to existence.

The sciences are the implements with which the learned work for the discovery of new facts, and thus the amount of knowledge is increased. Its diffusion enlists other operatives. The comfort and happiness of succeeding generations is increased. The race is elevated, and with the race, mind, or its effects, endure.

The nature, position and resources of our country, and the institutions under which we have lived, conspire to point out an emancipation from the thraldom, with which the cob-webs of time have surrounded the systems of instruction, that are followed in Europe. But even there, a new order is gradually being inaugurated.

So far as I can understand, there is no higher, no better manner of forming, or methodizing the mind, than through the sciences. They open a vista for reflection, which is unbounded; and from the separate works of the Almighty, the inquirer after truth is lead, step by step, and with increasing admiration, nearer and nearer to the immaculate archetype of creation

Nor does it appear to me, that life is so long, that we should neglect in our youth the acquisition of those facts, which teach us the laws that govern the world, and place at our disposal, and within our reach, new creations, that must have a continuous effect upon civilization. The sciences teach facts, about which there is no speculation; each has its utility, and by them the vision is enlarged and the mind elevated.

It appears to me, that the course pursued in our institutions of learning, falls far short of the requirements of the age. Much of time that is allotted to education, is spent in acquiring that which is not used in after life; and those facts

which should be known, are scarcely taught.—Necessity, more in this country than any other, calls us into the field of active employment at an early age, and we find, when too late, that we have passed too much time in acquiring that kind of knowledge, which we cannot or do not use, and neglected those studies which would aid us in our daily avocations, and furnish us with a never failing theme of elevating thought. Nor does the acquisition of the sciences preclude attention to other branches of education. Quite the contrary; but what I deprecate, is the engrossing attention required upon subjects that are of doubtful utility, at best, to the entire exclusion of those that are of crying necessity. I am in the category with most men. We deplore the loss of mis-spent time: it is probable that our experience may not profit others; yet it is not the less incumbent upon us to express honest convictions.

The object of education is to make us, whilst we live, useful to ourselves and to mankind, with as little harm to others as possible. The fact of our coming into existence, imposes upon us duties, which are greater than life itself; and if we so live, that when inevitable death comes, we can say that we have used our intelligence, through life, to guide us, to the best of our knowledge, we may calmly and confidently anticipate whatever may be the future. Science would appear to be the most elevating of occupations for the mind. If we are not permitted to comprehend the Almighty, his works and the laws that govern the universe, are at least partially within our comprehension, and their contemplation must exalt the understanding and purify the mind.

The utility of such institutions, as we have been speaking of, would greatly depend on the manner they are projected and carried on. Men of the highest character, ability and acquirements, should be selected, and with such advantages, great consequences might be confidently anticipated. Each in its own State would form a centre, around which other institutions would come into activity. Preparatory schools of various kinds and usefulness, would spring up, and their benign influence would extend and be felt to every part of the earth where a printed sheet would circulate.—Such institutions would naturally be charged with all questions of scientific interest. Investigations connected with the natural history of the geology, mineralogy, and agricultural fitness of soil and the peculiar adaptations to which the resources of the different States are best suited, would there be elaborated and kept to be referred to and used, as required. The learned faculty, each in his line, would engage in original and important research, by which knowledge would be increased, whilst the immediate objects of the institutions would be the diffusion of facts on all scientific subjects. It would be vain to attempt to fix a limit to the benefits that would thus be conferred upon mankind and their effects upon society.

If the Congress of the United States would act upon the suggestion of the Advisory Board, in giving a portion of the public domain to each State, for the specified purpose of endowing such institutions, thirty-three universities would spring into existence and form an epoch in the history of the world, scarcely less significant than the Declaration of our Independence.

T. G. C.

Prince George County, Md., Feb. 1859.

## MR. STRANDBERG'S DEVONS.

*To the Editors of the American Farmer:*

Gentlemen:—I perceive by the last number of your valuable paper, that J. Howard McHenry seems to be very much interested in the purity of my Devon stock. I am certainly under obligations to the gentleman, for his unsolicited interest; but I must inform him, that the purity, or impurity of my stock will not affect him, as I have none to sell him at any price. It is very strange the gentleman should call on me, at this time, to produce the pedigree of my stock, exhibited at Richmond, when he and all his adjuncts were on the spot; and if there was any informality, then and there was the opportunity to speak. I am sure the gentlemanly Secretary would have given them the information, if he had been called upon. Now, sirs, I gave a detailed account, in writing, of the pedigree of all the animals exhibited by me for competition, with indubitable evidence of the same; some of the gentlemen referred to being on the ground, ready to testify, if necessary. I, however, understand the gentleman perfectly well; he would have us believe that nothing outside of the herd-book was pure; but if he is correct, there are a great many valuable animals in Maryland of impure blood, and nearly all of the most prominent breeders in our glorious old State are breeding mongrels. If the Herd-book alone will make pure and valuable animals, and every thing outside is worthless, I would ask the gentleman what becomes of his great Red Rose, bolstered up by a long herd-book account, and yet so worthless that no one will give twenty dollars for him; he had the card for sale upon his stall for the last two or three years, and no one would have him, at any price. He did not make his appearance at our last exhibition, and I was told by one of the gentleman's neighbours he was turned out to shift for himself. My famous cow, Matilda, that has beaten the gentleman at Baltimore so often, (and which, I have no doubt, is the great sore under which the gentleman is writhing,) has been pronounced by competent judges to be equal to any Devon cow in this country. Now, gentlemen, in all fairness, let us review the facts a little.

At our last Show at Baltimore, where Mr. McHenry was on his own ground, surrounded by his friends, and with his friend and co-adjutor, Mr. Wainright, of New York, it was said by Mr. Calvert that there was a greater show of Devons than had ever been exhibited on any ground in the United States. The President, to his honor be it said, being desirous to do even-handed justice to all, selected the Committee from gentlemen who were entire strangers to us all, and who were breeders and importers. The Chairman, Mr. Bright, is said by competent judges, to be one of the best judges of Devons in this country. Those gentlemen entered upon their arduous task with energy, and gave the whole day to a critical examination of every animal on the ground, without saying a word to any one, and what was the result? My cows Matilda and Butter Cup carried the first and second premiums; also, Richmond, a two year old bull, the first premium; Beauty, Matilda's calf, the first premium also; and, at the herd premium, Mr. Charles Calvert publicly said that I exhibited the finest herd of Devon milkers he ever beheld, and would have awarded the herd premium to myself, but for the fact that my Dev-

on bull, although a splendid animal for his age, was too young to be at the head of a herd, as he always regarded the bull as being at the head of the herd, and he ought to be fully matured. Now sirs, I will give the gentleman a good account of of my Devons by undoubted authority.

Matilda was raised by Mr. Edward Stabler, out of his cow Eliza, her sire was Col. Caprons' Eclipse; she was sold to Mr. Samuel Sutton, a gentleman of undoubted character, and the best dairyman to be found anywhere. I purchased Matilda from Mr. Sutton, at the Baltimore Show, in 1854. Matilda had her first calf by her side at that time, and was with calf by Mr. Sutton's bull, a premium animal. I also purchased, at the same time, Jane, with a heifer calf by her side. I have bred nothing but Devons on my farm ever since.—When I bought the above cows, I had no bull of my own, and in order to have the best and purest Devon to serve my cows, I procured Bolingbroke, a premium animal, calved at Mr. George Patterson's, and purchased by Mr. William R. Hughlett, of Talbot county, Maryland; from this stock originated my celebrated milking Devons. I have given my personal attention to my stock, have read all the authors on the milking marks, and am a believer in Mr. Guenon's system. I have changed my bull every two or three years, and have endeavored to procure such stock as exhibited the milking marks; how far I have succeeded the public may judge. My young bull Richmond, which has taken four first premiums, I purchased of Mr. Haxall, of Richmond, Virginia; his sire was Pioneer, and out of the best cows raised by him, of which I have a pedigree. My object in this purchase was to get as far off as I could in relationship to my stock, and also, with an eye to fine milking marks, as evincing his aptitude to propagate good milkers.

Baltimore is out of my cow Jane, above-mentioned; Beauty is out of my famous cow Matilda by my own bull. This calf has taken the first premium at every show last fall against so great competition, and I refused two hundred dollars for her at Petersburg, from a gentleman from Alabama.

I hope I have given the gentleman good authority for the purity of my stock, with candour and fairness. I am obliged to him for the opportunity which he has thus given me of placing my cattle before the public, to let them judge for themselves, without being bolstered up by herd-books as a means of covering the deficiency in the stock.—My entire object has been milking qualities, not like the gentleman above-referred to from New York, from whom Mr. McHenry procured his stock, and who said at Richmond, he would not *have a milking Devon*, he wanted *beef*. This is a matter of fancy, but I prefer utility to fancy. I have trespassed upon your limits, but I could not do justice to the public and myself by saying less.

Yours, most respectfully,

HENRY J. STRANDBERG.

BROOKLETTS, *Talbot Co., Md.*

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MORE HEREFORDS.—John Merryman, Esq., the very able and efficient President of the Maryland State Agricultural Society, has lately added to the fine herd of Herefords procured by him from Mr. Sotham, of New York, by purchasing several superior animals of the same breed, from among hose owned by the State of Massachusetts.

## BUCKS COUNTY FARMING—REPLY TO MR. HEWLETT.

PARTRIDGE HALL FARM,
*Bucks County, Pa., Feb. 7th*, 1859.

*To the Editors of the American Farmer.*

*Gentlemen*:—In an article in the February No. of your truly excellent publication, your correspondent, J. Q. Hewlett, in a very decided manner condemns the "*ploughing in heavy growths of vegetable matter*," and as you say you "should be glad to hear from others, whose experience will enable them to speak advisedly," I take the liberty, in a plain way, to furnish you with my humble experience and a few reflections upon the subject.

Your correspondent referred to, says: "The injury sustained by ploughing in heavy growths of vegetable matter, is the result of slovenly farming." "Let a farmer plough in stable manure, straw, litter or any other matter four or six inches, leaving a light porous surface, and his wheat will be winter killed."

I believe I am willing to submit to the charge of being a *slovenly farmer*, by taking the very opposite position in this controversy. I hold, with your correspondent, that wheat requires a "finely pulverised," and, if you please, "a compact surface;" and I have no objection to his ten or twelve inches depth of ploughing, (and certainly object not to the frequent use of the roller and harrow) if he has an enriching material to mix at the same time with the soil. His "stable manure" and "heavy growth of vegetable matter," *turned under*, so far from being an injury, are the very materials to render the land friable and mellow, furnishing an opportunity to the roots of wheat getting such a strong hold, before the setting in of cold weather, as to make it secure from the effects of winter killing. I apprehend that it is not the *ploughing in* of the materials referred to that causes winter killing, but the effects of *water remaining in the soil for the want of proper drainage*.

"It would be far better to top-dress the wheat during the winter with the barnyard manure or straw, than to pursue the general usage." Here I must again dissent from the proposition of your correspondent, believing that ten fold more good would be secured by pursuing the "general usage," viz:—*ploughing in*. That straw or coarse litter, spread upon the surface, will do good in some of our severe dry winters, I have little doubt.—But, where the land is level and subject to water remaining upon the surface after heavy rains, I think much injury would be done by smutting the wheat, besides furnishing, at other seasons, a harbour for field mice. To illustrate this practically: When I came into the possession of my homestead farm, twenty years ago, it had been rented. The tenant, anxious to secure all the benefit possible from a well filled barnyard of manure, which he could not sell, hauled, during the winter and early spring, before the termination of his lease, nearly all of it upon his field of wheat, spreading it over the surface. The result was, *a heavy growth of straw and about half a crop of inferior wheat*.

When I commenced farming nearly a score of years ago, it was conceded that I had one of the very best farms in this beautiful limestone valley. It had, however, been rented for some ten years; and when the tenant left it, there was but little straw or material out of which manure could be manufactured. I possess still some of the latent feeling and ambition of a Marylander, and I did not

choose to cultivate poor ground, if it could be avoided. Having extensive limestone quarries, I adopted the course condemned by your correspondent, *ploughing in* "heavy growths of vegetable matter," and top-dressed with lime. By this plan I have used full thirty thousand bushels of lime, and if you want to know the practical result of this operation, I refer you to my neighbours and the published records of our County Agricultural Society.

My first experiment, upon a large scale, was the *plowing in* of a twenty acre field of corn, seeded broadcast at the rate of two and a half bushels of corn to the acre. The seeding was done the latter part of the month of May. As soon as the corn was out in *tassel*, which, I think, was the last week in August, and when it was from *six to eleven feet high*, thickly set, I put in a strong three horse team, to a high beam plough, made expressly for the purpose, and *turned in* this *heavy growth of vegetable matter* about eleven inches deep; and so completely was the work executed, that when finished, few persons could have told that any thing more than ordinary had been plowed under. The field was then rolled and left in this condition until about the middle of September, when it was further cultivated with the harrow and common corn cultivator. One and a half bushels of wheat were then drilled into the acre. The result was, a very heavy crop of straw, so that much of the wheat lodged before ripening properly, and a yield of *twenty-six bushels of wheat to the acre*. I may here remark, that this was ten years ago. So far from admitting "that the system is injurious," the field still makes a faithful return for what has been done for it; and I received from our County Agricultural Society, a few years after, the *first premium* for a crop of corn grown upon it, estimated at *seventy-five bushels to the acre*.

Not believing in the cultivation of wheat in this section of country, without the application of some kind of good manure, or something that would serve as a proper substitute, I adopted the plan also, of sowing clover with oats in the spring. This, I sometimes pastured in the early part of the spring following, and hauled barn-yard manure and spread on the parts most needing it. I always, however, removed the cattle in time to let the clover grow thick and get out in blossom. I then commenced *ploughing it in*, from 6 to 8 inches deep, and continued this "*slovenly*" process until sometimes the clover began to get pretty well dried before all was finished. I then rolled, and about the 10th of September commenced a second ploughing. As soon then as the ground was in good order by harrowing, "leaving a light porous surface," drilled in the wheat. I put forty-seven acres in wheat in this way one year, and the result was—*sixteen hundred and nine bushels of as good Mediterranean wheat* as I ever saw grown. In the Fall there was a marked difference in the appearance of the wheat; that, where the clover was ploughed under while in a succulent state, looking much the best; but, at harvest, there could be no difference discerned. The year I raised this crop of wheat, an account of it was published by the miller, (Mr. Thomas,) to whom I sold it, in one or both of our county papers, and you probably knew of it already, as I am pleased to see you take some interest in our Bucks County Agriculture.

Now, in conclusion, permit me to say, that I think my course better than that of the farmer you allude to, who last year set "fire to his clover field, to prepare it for ploughing." I will not denounce his plan as *slovenly*, but certainly it was *wasteful*. Was not this clover field burned rather to avoid the difficulty of *ploughing the growth of clover in*, than to secure a "finely pulverized surface?" But I have already spun this article out further than I intended, and probably longer than will prove interesting to your intelligent readers.

WILLIAM STAVELY.

## THE USE AND ABUSE OF ARTIFICIAL MANURES.

*To the Editors of the American Farmer:*

MESSRS. EDITORS:—It is really astonishing, when we estimate the amount paid out by the farmers of Maryland and Virginia, during the last eight years, for what are called *artificial manures*, and not only the amount, but the fact, that they have, during that period, learnt so much as to their value, (when properly used) and the *mode* of applying said manures. Among the first articles written on the subject of *Guano generators and regenerators*, &c., was one elicited from the writer by your predecessor, no later than the summer or fall of 1850; and it was the cause of *much* enquiry, (not for its intrinsic value) from the writer, at that time; nevertheless, such has been the knowledge gained in such a *very short period*, not only as to the *mode* of application, but the value of artificial manures, that, at this time, such an article would be laughed at, as the author of it did, on casting his eye over an old number of the Farmer. But, Messrs. Editors, it would be well if we *now* had more *fears* as to the application of the great quantity of the so-called manures and fertilizers, which are now so carelessly thrown away on our lands; would it not save "thousands" to our planters and farmers? My object is to notice the great *abuse*, not the *use*, of artificial manures; for, *mark it*, Messrs. Editors, the great improvement of our farms began with the introduction of artificial manures, as also, per consequence, the advance in land. While many have used such manures *rightly*, that is, to aid them in increasing their quantity of *straw* and *corn provender*, on which *only* they may rely, with *certainty*, for an increase of barn-yard manure to replenish their grass land, and thereby double their *hay* crop, and, then, have relied only on lime and the barn-yard, (unless they had still more old fields;) many have come to the most absurd conclusion, that it is cheaper to buy guano, than even haul out manure, much less do all in their power to make every pound they can, and be glad they have it to haul out. Well, what is the consequence? Why, just what struck the writer seven years ago, when the President of our Md. Agricultural Society said in an address to the Society on this very subject, "The old cry, as formerly, about *plaster*,—lands *over-stimulated*,—*guano* won't act as it used to do, and my land getting poorer;—what is to be done?" &c. "Emigrate or sell out, to go at something you don't understand?—and, my friends, so it is always, the *same old tune*. Now, we want—and, I tell you, must have—an experimental school," &c. If I have, from memory, not quoted one of our *late* Presidents correctly, I beg his pardon. But, sir, we now constantly hear what he predicted long ago; and the sooner we set about

to "mend our ways," the better. I do not condemn artificial manures, but their great *abuse*. If *used* rightly, there is great value in many of them; and let all try to invent something to take the place of *Peruvian Guano*, and we will try to find out the "humbugs" by which we have been *so often* cheated. And now, the most potent of all, is the careless abuse of guano, when not used with an eye only to the *barn yard and lime*. No land, according to the humble experience of the writer, who has used guano first and last in large quantities, ought to have guano (Peruvian) more than *twice*, and limed, in small doses of twenty-five bushels per acre, and *boned*, if the expensive means are at hand, at fifteen to twenty bushels per acre; then set in grass after wheat, using two parts timothy and one clover, according to circumstances; and in our tobacco region, where light land will not admit of its laying long in grass, I would recommend (as I intend to do this spring myself, on a tobacco farm—and it is not now too soon to sow clover seed) mixing *one-third* timothy with clover seed, and apply nearer a peck to the acre than less. *Thousands* of bushels of clover seed have been thrown away, by sowing *too thin*, besides by the bad practice of grazing your clover, which, according to my experience, ought not to have a *hoof* on it, from the time it is sown, until it begins to bloom; I have done this, whenever I could get managers to attend to it. The waste in permitting stock to go on clover too early, in spring, is immense.

I have tried high and low-pressure farming;—there is great loss in both; the first will break farmers of *small means, very soon;* and those who have *large means*, soon get tired, and quit before they spend *all*. Like most other matters, the truth is between two extremes. I know many who began farming by buying land at $5 to $10—of course poor, but naturally good—and that in this and the lower part of our State,—some grew tobacco and grain, as a *money* crop, and some *grain* only, and I have seen such, not having enough to pay one-third, in cash, for their land, raise large families, buy negroes and get rich, and, for their lives, they could not tell you how they did it. On the other hand, I have known others, considered very *intelligent, industrious* and *sober*, buy fine farms, and pay all down, in cash, make large crops, and in a few years *break*, but not from extravagance or bad management, as far as all could see.—Of course, I have no particular individuals in view, and only suggest this old fact as a *text*, for the comments of wiser and more experienced farmers.

ED. REYNOLDS.

## ARTESIAN WELLS.

In reply to a correspondent who has made some inquiries in relation to Artesian Wells, we give below too very interesting letters addressed to one of our friends and subscribers a (resident of Kanahwa county, Virginia,) who has furnished us heretofore with valuable information, and has kindly permitted us to place upon our pages the following. We have not had time to have engraved, for our present Number, the drawings requisite to illustrate this subject, but hope to supply that deficiency hereafter. Coming as these letters do from practical men, and one of them from a person of great experience in sinking Artesian Wells, for obtaining salt, in the valley of the Kanahwa,— they cannot fail to receive high consideration:

BUNGERS MILL, Nov. 12th, 1852.

*Dear Sir:*—Yours of the 8th, enquiring as to the most suitable apparatus for boring Artesian Wells, &c., reached me by last mail. I can only impart information as to some of the apparatus used in boring for salt water on the Kanahwa; but, to secure to you such other information as may be valuable to you, I will refer your letter to an intelligent gentleman (salt maker) and request him to write you in detail very soon. The auger or drill now in use is made of iron, 12 or 15 inches long, the shaft from 1¼ to 2 inches square, with a male screw at the upper end to connect it with the first pole. The bit is made of best cast steel, about 1 inch or 1¼ inch thick, with an edge formed by a bevel of about 1 inch on each side. The width of this bit is governed by the proposed size of the Well to be bored. Wells on the Kanahwa are now bored of a size varying from 4 to 6 inches in diameter. To match the screw on the drill is a female screw of correspondent size, which is attached to the pole with opposite parallel straps of iron, some 12 inches long, which are riveted through the pole—on the opposite end of the pole is a male screw, secured to the pole in the same way. The length of each pole is regulated by convenience—they are usually 20 or 25 feet each. On the top of the working pole is a female screw with a large swivel, which admits of turning the pole in the well to form the hole. The Salt Wells are now entirely sunk by steam. The manufacture of the drills and auger poles, couplings, &c., is not made a separate branch of labour. Any Black Smith, I believe, is regarded competent to make them. I am not certain that I know the kind of Sand Pump now in use, but think it resembles a Shoe Punch, with the bottom closed and pointed. This is forced into the debris of the drill when it is drawn up full.

For fear I may not be sufficiently correct in my information upon these subjects I will endorse your letter to a friend on Kanahwa, and request him to reply fully.

Very respectfully yours, &c.,
EDWARD WALKER.

KANAHWA, C. H., Nov., 23d, 1852.

*Gentlemen:*—Mr. E. Walker, requested me to give you some information as to our mode of drilling for salt water, and the kind of drill we use.

We will suppose the hole commenced, and it is to be 3 inches diameter. The size of the bit is always the first thing to be determined upon, and *that* will first claim our attention as it has to do the execution.

We make the bit from 12 to 15 inches long—taking for this purpose a piece of iron, 2½ inches by 1¼ inch square, splitting the lower end and inserting two or three pounds of either good blister or cast steel, and on the upper end we have a screw, cut about 1½ inch long, which we term a pin, and in order to make it drill a round hole, the lower end of the bit must be full 3 inches one way, not only on the lower end, but up nearly as far as the steel extends, and the steel part must be about 1¼

inches thick, with the lower end beveled off as short as possible, to bring it to a cutting edge. The steel part of the bit should have the corners rounded to correspond with and fill the hole nearly two-thirds full. The pin on the upper end of the bit, or the screw, should be 1¼ inch diameter, with a ring of horse shoe iron, welded around its base, to form what we term a collar. The next thing is a sinker, made of 1¼ inch round iron, from 20 to 30 feet long, with a socket or female screw on the lower end, that will just receive the screw on the end of the bit, and screw tight down to the collar on the base of the pin on the bit. On the upper end of this iron rod or sinker is another screw or pin, made like the one on the bit, only a little smaller, say 1 inch in diameter.

Next comes the pole. This is made of white oak, by getting a stick that will split handsomely. Split it out something like splitting flat rails for post and rail fence, dress it down to about 2 inches thickness, then split the other way with a hand saw. First make square poles, then dress down with a round or moulding plane. This precaution is necessary in getting out the poles, in order to have none cross grained. The poles should be nearly 17 feet each, when dressed out. An iron socket is then put on the lower end of this pole, made similar to the socket on the lower end of sinker; and to fasten this socket to the pole, two straps are welded to the socket about one foot in length, each—made a little oval to reach about ½ round the pole each, and thin at the edges, so they can be set down close to the pole with a hammer after riveting. The pole is then shaved down to a nice wedge at the end, and slipped in between those straps, and 3 or 4 rivets passed through the pole and both straps, and drawn down tight. Two of these poles are then butted together and connected by 2 straps, made so as to surround about ⅔ of the pole, one upon each side, covering the splice, with two rivets through the straps each side of the splice and through each pole. These "strap joints," as we term them, are to be drawn down as afore described with the hammer, making the edges hug the wood, quite tight. On the upper end of this pole, a pin is fixed like the one on the upper end of the sinker, to receive the socket fixed on the next pole. The pole is then complete, and ought to be about 33½ feet in length. The poles are all made alike, and the sockets and screws ought to correspond in size, as near as convenient to make them, so that a change of poles will make no difference. The pin on the bit is made larger because more liable to break. The first socket being larger, so as to fit this pin—this socket is on the sinker—the poles therefore will all be of same size if rightly made. On the upper end of the drill we fix a swivel, into which we tie a rope, this rope is fastened round a horizontal lever, and the lever is made to rise up and down by the engine about 15 inches, giving the drill a perpendicular motion to that extent. The object of the swivel and rope is to enable the man managing the drill, to turn the drill a little, each time it is raised by the lever, say 1-8 round, thus never striking twice in the same way. This is the only way to keep the hole round. The lower end of the swivel is a socket that fits on the pin of each pole.

To screw the joints of the drill together we have wrenches—one of these wrenches is placed around the pole just under the pin, the other is placed around the pole just under the socket.—You must have scaffolding so the pole can be raised to a perpendicular over the hole—insert the first pole or sinker in the hole, let it down until the pin only sticks up—your wrench being around the pole, under the collar, that is, at the base of the pin will enable you to hold that to its place—you then raise the other pole—place the socket on its lower end or to the pin on the pole in the hole, and with those wrenches you can draw the screws down quite tight. In making these joints, we generally number, them as we fit them together, in order to keep the joints as perfect as we can, and should it be necessary to change them, if they do not fit well, we wrap the pin with hemp to make a tight fit. The pin on the bit should always have a little hemp on it, in order to make it perfectly tight. The sand pump is made by taking about 10 feet of 1¾ inch copper tube. Take then 2 feet of the upper end of an auger pole with the iron pin on it, slip the lower end of this piece of pole into the end of the tube and nail it fast. Just below the end of the pole cut a hole in the side of the tube ¾ inch wide and 2 inches long, fix a valve in the lower end of the tube, by making a nice wooden box to slip partly in, with a leather clapper on it, letting the lower end of the box come a little below the lower end of tube say, ½ inch;—tack this in with nails, and screw the whole on to the bottom of your auger poles, then put it down the hole; churn it up and down a few times by hand, let it stand a few seconds, for the sand to settle down on the valve, then draw out, unscrew and turn the pump, lower end up, and the borings will run out of the hole cut near the upper end of the tube.

There is one other little invention we use, which very materially facilitates boring, and saves the wear and tear of the auger very much. It is what we term "Slips," or "Slip Joint." This is made of heavy horse shoe iron for the sides of the links, with a pin on one end and a socket on the other of each link, and is screwed on to the top of the sinker, between the sinker and first pole. This joint is made about 20 or 30 inches long, and resembles two pair of tongs—the one clasped inside of the other so they will slip up and down without coming apart. The heads of each part of these slips are grooved a little for the legs or sides to run up and down in, and to keep them to their proper places. These slips are screwed on to the top of sinker, and unless they break or get out of fix, are permitted to remain there, always unscrewing the pole from the upper end of them.

I believe this is all that is necessary to say in relation to the tools we use. Other things will naturally suggest themselves to the operator.—Should you wish any further information, if you will inform me the kind of hole you contemplate boring, the size and probable depth you may have to go, I will endeavour to give you my views upon the subject. Any good Smith can make all these things. We have no regular makers of these things, but have them made by our Smiths as occasions require. Should you have a large job on hand, my opinion is that a great saving of time and expense would be effected, by sending to this place and procuring a young man who has followed the business. Very respectfully yours,

W. J. RAND.

N. B.—You must be careful to have all parts of your auger smaller than your bit, in order to keep it from getting fast.

## LIGNITE—INSECTS DESTROYED—TIMBER PRESERVED.

We have received from Dr. P. T. Tyson, our Industrious State Chemist, the communication below, accompanied by an account taken from a late number of an English periodical, of a powder exhibited by M. Millot Brulé, a distinguished member of the French Academy of Sciences, at a late meeting in, Paris, of that learned body.

*To the Editors of the American Farmer:*

The annexed article, coming from an authentic source, as it does, may be useful to agriculturists and others of our State. I therefore enclose it to you for publication, with the hope that it may be put to the test of experience by those having access to the material.

I may add, that this material is nothing more than the lignite, (called Bovey coal in England) which abounds in the secondary and tertiary clays of Prince George, Anne Arundel, Baltimore, Harford, Cecil, and other counties of Maryland.

It is exposed in several of the deep cuts on the Rail Road from Baltimore to Washington, and in numerous other localities; so that, if it be as effective as is stated by M. Millot Brulé, ample supplies can be had.

I do not feel a doubt that it possesses fertilizing properties, and for the following reasons:

1. It always contains sulphuret of iron, which upon exposure to air and moisture becomes sulphate of iron; and this is decomposed by the ammonia so readily absorbed by lignite, and produces sulphate of ammonia, the fertilizing value of which is well known.

2. It usually abounds in humus.

3. The mass of it is somewhat analogous to charcoal; but consists of carbon in such a state, as readily to afford carbonic acid to the roots of plants.

When dried, it is readily powdered, and if it be found useful, parties would doubtless procure it in ample supplies and grind it for the use of the farmer and planter.

It would seem especially proper to apply it to tobacco beds, as soon as the first leaves of the plants appear above ground, even if it has been previously applied; and should it save them from the ravages of the fly, the hitherto unused lignite would prove a boon to Maryland.

Very truly, yours,

Philip T. Tyson.

Baltimore, Feb. 14, 1859.

"M. Millot Brulé exhibited a black powder, obtained from a purely natural substance, which, should it come into general use, will gladden the hearts of gardeners. If you have a plant or shrub, that you wish to preserve from noxious creeping things, draw around it a circle of this black powder, and not a snail, or slug, or worm, or maggot, will attack it; for no sooner do they touch the black powder than they are thrown into convulsions, which speedily destroy them. A whole bed, or plot, may be sprinkled with it, and with the like results, and without injury to the garden. On the contrary, the powder is a good fertilizer. It is said to be a specific against the grape disease, and that if blown lightly into an infected bunch, the *oidium*, or fungus, is seen to curl up and perish. The composition of the powder is no secret; it is nothing but a species of lignite—sulphur-coal, as the Germans call it—ground fine. Ardennes abounds with it: and it was with lumps dug from that region, that M. Millot Brulé made his experiments. It is formed in extensive deposits at Oppelsdorff, near Zittau, in Saxony, where, for some years past, it has been turned to account for the preservation of timber. The sulphur-coal, to give it the local name, is reduced to powder, and made into a bath with water. The wood to be treated is plunged into this bath, and left there for a time, without any mechanical pressure, until it has undergone a change, which partakes of the nature of mineralization. Mere contact with the lignite appears to suffice; and we are told that beams which have been used in the workings for thirty years, are sounder and more likely to last now than when first put up. In Saxony, the railway sleepers are prepared with this substance, and with manifest advantage."

## THE PRIZE FILLY "MARY CHILTON."

We have been politely furnished by John P. Welsh, Esq., of Syracuse, N. Y., with the sketch of his prize filly "*Mary Chilton*," which has been drawn and we have had engraved, expressly for this number of the *Farmer*. The very handsome thoroughbred Stallion "*Consternation*," owned by this gentleman, was engraved in our December No. "*Mary Chilton*" received the first prize ($75) in her class, at the Horse Fair held at the Eclipse Course, Long Island, N. Y., in October 1858. Mr. Welsh has sent us the description and pedigree of "Mary Chilton," in the following letter:

*Lexington, Ky., January 7th*, 1859.

*To the Editors of the American Farmer:*

Gentlemen:—I send you, on the blank page of this sheet, a sketch in pencil of the Prize Filly "Mary Chilton, of whom the Spirit of the Times said in substance, that, while there were as many opinions in regard to the awards as there were persons, all agreed that Mary Chilton was the most beautiful animal on the ground. She is indeed a beautiful, and a most perfect type of the Glencoe family, as you will observe from her likeness. She is now four years old, and stands about 15½ hands high. In color, is a bright chesnut or sorrel—known as the Glencoe or Selim sorrel, and has four white feet, very little white in the fore feet, and no other marks. In form she is particularly fine, of good length, very deep chest, fine arched neck, broad back and loin, hard wiry legs, with immense muscle, particularly on the thigh and throughout the quarters. Her pedigree is as follows: Mary Chilton, ch. filly, foaled in 1855, sired by Imported Glencoe, dam the dam of Bird Catcher, by American Eclipse, g. dam Queen Mary, by Bertrand, g. g. dam by Brimmer, g. g. g. dam the dam of Woodpecker, by imported Buzzard, g. g. g. g. dam the Fawn, by Craig's Alfred, g. g. g. g. g. dam by Moreton's Traveler, g. g. g. g. g. g. dam, by imported Whittington. She has never run in public, but has been trained a little, and exhibited immense speed.

☞We have received from Messrs. W. W. Dingee & Co. their illustrated catalogue of Threshing Machines, Grain Fans, &c.

Drawn from nature and engraved, expressly for the American Farmer.

## FRUIT CULTURE IN VIRGINIA.

STAUNTON NURSERIES, Staunton, Va., January 22nd, 1859.

*To the Editors of the American Farmer:*

GENTLEMEN:—As you are familiar with the geographical position of "Staunton," of that, I need say but little. It is situated in the "Great Valley" of Virginia, distant 120 miles a little north of west from Richmond, and connected with that place by the "Virginia Central Railroad.' Its altitude is nearly 1400 feet above tide-water; population about 3500. Amongst the institutions of note are two founded, many years ago, by the State; one as an Asylum for the Insane, the other for the instruction of the Deaf, Blind and Mute, where they are instructed in the different branches of learning. Various mechanical operations are carried on at this institution, in which most of the students participate. Both these institutions are well conducted, and are in a flourishing condition. We have five churches and a respectable number of Academies and Seminaries. But, perhaps, I am dwelling too long in town; I will now call your attention to the surrounding country. Staunton is emphatically the "City of the Hills;" they press in upon it on every side, and tower far above its loftiest spires, thus affording natural observatories, overlooking a great extent of country between the Eastern and Western boundary of the Valley.—The Valley, at this parallel, is about 22 miles in width, bounded on the East by the Blue Ridge, and on the West, by the North Mountain. The surface, in some places, is quite hilly; the most part of the land, however, is level enough for agricultural purposes. I would not be doing justice did I not say that much of it, and particularly along the large streams, is all that the agriculturist should desire. Wheat and corn are the chief products. It is not necessary for me to attempt to define particularly the different kinds of soil, to be found in this Valley; the major part of it is what is usually termed a *limestone* soil, differing, however, very much in quality—the rock in some places lying deep, and in other places breaking out upon the surface very much to the annoyance of the agriculturist. We have also sand-stone and various qualities of slate, exhibiting different degrees of fertility.

I will now draw your attention to the subject in which this section must ultimately feel a deep interest—I allude to fruit-growing. Pecuniary gain is the motive that leads the majority of mankind to cultivate the soil—to plough, to sow and reap; I might add too that it exerts a great influence over the majority of mankind in most of their pursuits. When that pecuniary interest is associated with so much that is pleasing and refining as is connected with the growing of fruit, is it not astonishing that so few have embarked in the business? Is there not a pleasure of an exalted character felt in planting a tree, carefully attending to its wants, and watching it put forth its first bloom, and marking its progress until its fruit ripens and hangs there as a gracious reward for your attention?—a pleasure more pure than can be felt by him who spends his days in busy marts, bartering commodities with his fellow-men. There is pleasure enough in the culture of fruit, without the pecuniary gain, to remunerate all the trouble that it requires; and could I follow the inclinations of my feelings, "my best days should be spent in gardens and orchards."

It is demonstrated that we have a soil and climate here that will produce, with ordinary care, fruit equal, if not superior, to almost any other portion of the Union. Apples, pears, peaches, plums, cherries and grapes, all do well. The apple has received the most attention; and the day is not far distant when this region will be renowned for growing that fruit to a degree bordering close on perfection. It has already attracted considerable attention abroad. The fact only requires to be a little better known, and large orchards will be planted for the purpose of growing fruit for the supply of our large cities; and, perhaps, for exportation.

Land suitable for the purpose can be bought for $30 per acre; and that, (of excellent quality,) on the Blue Ridge, not far from the Railroad, for less than half that sum. The crop in favourable situations is as certain here as almost anywhere else. I do not claim that the Valley at this point is the only portion that is well adapted to growihg the apple, for it succeeds well both North and South of us, and throughout the whole range of the Blue Ridge, from the northern to the southern boundary of the State; and also throughout a great portion of the Piedmont country; but were I planting I should prefer a *limestone* soil. I believe it is generally conceded that such soil produces the finest apples.

Of the success of the Grape, I cannot speak so positively, for none, scarcely, have planted farther than to supply their own table. Those who have given some attention to its culture are elated with their success. Although I cannot speak positively, I am convinced that there are but few places where it would succeed better than on some of the elevated portions of the Valley. The high southern exposure of some of our hills, the deep warm limestone soils would be just the element in which it would delight. My observations have convinced me that, in a proper soil and with good management, it would be almost wholly exempt from disease with us. We have no trenched grounds, and but few cultivate and prune properly; yet, unless it be in a very unfavourable situation, the fruit seldom rots or mildews. The Catawba and Isabella are the only varieties that have been cultivated to any extent. Some of the newer kinds are now being planted, and we expect to hear a good account from at least a portion of them. Yours, truly,

FRANKLIN DAVIS.

## FARMING IN FAIRFAX CO., VA.—PEABODY CORN, &c.

The following, extracted from the letter of an esteemed correspondent, who farms in Fairfax Co. Va., is an indication of the improvements that are going on in that county, and of which we have heard much of late years:

"I have seen no notice in your paper, of trials made with what is called "Peabody Corn," but which I suppose, is really the old "Baden Corn." I have never seen the "Baden," but from its description, I should suppose it to be identical with the other, if this phrase is correct.

Now, some people who have heard marvellous stories about the Peabody, and have tried it, because it has not brought the 160 and 200 bushels to the acre, which the dealers in wonders asserted

it would bring, have at once set it down as a "humbug." The *humbug* is in believing too much.

I had some of the grains presented to me by a neighbour, with the 200 bushels theory advanced; *but I insisted upon the* 160 *bushels, as the greatest amount I had heard of.* I had it planted along the edges of beds in the garden, and only tolerably tilled; some of the stalks bore three, and some four, well developed ears—not so large, it is true, as my old Fairfax corn, but yet respectable; and my opinion is, that if early planted, in well tilled soil, (good soil) the crop (season being favourable) would not disappoint the workman. If the ground was well tilled before planting, no doubt the result would be better than that from after tillage.

My little farm is five miles from Georgetown, D. C., in Fairfax county, on the turnpike, and I am trying to get it up. When I bought it in 1852, it was in low condition. This year, amidst loud complaints, from many quarters, of failure of crops, my corn crop was good, except where too much moisture prevailed on a part that requires drainage. My clover, under a top dressing of plaster and ashes in the Spring, and upon a soil, when I took it, no ways remarkable, reached a height of nearly, or quite, six feet; not sapling, but ordinary red clover.

For several seasons I have raised no wheat—*the fly is abroad*, and I have substituted *rye* instead of *wheat*, and I have some doubt whether when the fly is not about, it will not pay as well.—This season I have put in some four acres of wheat, on trial, and it now looks well. It was sown broadcast, on a field limed with gas house lime, stable manure, and soil turned in. My preparation for corn land (old) is gas house lime and stable manure. I have bought only four small bags of artificial manure for years, but rely upon ashes, wood pile, hen, hog, and horse manure, with the gas house lime. When I first commenced I tried store lime but prefer the other.

Very respectfully, yours,

R. C.

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## THE APPLE IN MARYLAND AND IN OHIO.

We have received from a correspondent, the communication below, upon the subject of the cultivation of the Apple in Maryland, and commenting upon our remarks in the Farmer for last month, on the article in the Report of the Ohio State Board of Agriculture. Our correspondent is mistaken in supposing there is any difference of opinion between us in relation to the generally superior fitness of apples of Southern to those of Northern origin, for the purposes of Southern cultivation. In our remarks upon the article in the Ohio Report—which article, we believe, must have been written by some one who is probably a nurseryman, and whose trees entered into competition with those from the East—we desired to show, as we think we did, that the testimony adduced by that writer, was in favour of the Eastern varieties; and we stated that we *knew* that some of the apples of Northern origin "did not maintain the reputation acquired at home when transferred to Maryland," and believed the same in relation to Southern Ohio. So far as the answers given to the query propounded in the Ohio Report, "What are the six best varieties of Winter apples?" prove anything, they prove that the votes, according to the analysis we gave, were overwhelming in favour of the Eastern varieties. It may show great ignorance, if our correspondent pleases, in the people of Ohio not to have given the preference to other apples, but they could answer, only, according to the best of their knowledge; and if they were unacquainted with apples of Southern origin, of course they could not speak about what they knew nothing. But it should be remembered that Columbus, the capital of Ohio, and which is a little North of a line forming the southern boundary of the central portion of the State is on the same parallel of latitude with Philadelphia, and that there is but a very small portion of Ohio south of the parallel on which Baltimore is situated. Three-fourths of the State is north of a prolongation of Mason and Dixon's line westwardly, and one-fourth of it is north of the parallel of the city of New York. The majority of the counties from which the answers came, in reply to the interrogatory mentioned in the Ohio Report, lie in *Central* and *South-eastern* Ohio; many of them immediately upon the Ohio river.

Now, although it is true that some of the Northern varieties of apples do not succeed well in some portions of the Southern States near to tidewater, yet it is by no means certain, that the same varieties will not be fully equal to the reputation obtained at the North, when cultivated in hilly or mountainous interior. The Valley of Virginia, for instance, the Alleghany range and the spurs from the Blue Ridge, in Maryland, and the mountains of North Carolina, Georgia and Tennessee, all afford a temperature suitable to the growth of apples of Northern origin. The Newtown Pippin flourishes in Virginia, and acquires an excellence there which that best of apples, hardly attains in its native State.

It is necessary to be very careful in condemning any variety of fruit, of well established reputation, because it does not happen to succeed well in the particular locality where those who condemn it reside. Soil and climate vary so much, even within the limits of a single State, that what is true of a fruit in one place, may be found entirely contradicted by experience, within a comparatively short distance. In this State, near to tide, the Baldwin and the Hubbardston Nonsuch, do not equal their Northern reputation; but in the mountains of Frederick and Washington or of Alleghany counties, they may produce very good fruit. The Baldwin, however, we have never considered an apple of first quality any

where, and have much preferred the Hubbardston Nonsuch; the writer of this having tasted both in perfection in Massachusetts. For our own table, whatever fancy our Northern friends may entertain in regard to it, we would not, in any latitude, care to have a single tree of the Roxbury Russet in our orchard. It is an apple that will keep for a great while, but so will a corn cob; although it must be admitted to be rather more profitable than the latter. We shall be glad to hear again from our correspondent, upon the subject of his experience in the cultivation of the apple, and particularly in regard to the varieties of that fruit procured by him from Georgia.

*To the Editors of the American Farmer:*

Gentlemen:—I am pleased to see the turn which the Farmer has taken the present month, (February,) in devoting more than the usual number of its pages to the subject of fruit culture, which, I hope, is the commencement of a new era in the progress of your valuable journal.

Perhaps there is not another portion of the country in which so little attention has been paid to the raising of good fruit, (until the last year or two,) as in Southern Maryland, owing to the fact, I believe, of the all-absorbing character of the crops raised in this portion of the State, leaving but little time to the planter to pay much attention to the cultivation of fruit, no matter how strong his inclination and his taste may run in that way. But when the subject is freely discussed, from time to time, through the pages of the "*Farmer*," (a work read by nearly every planter of the State,) it will have the effect of awakening an interest in horticultural pursuits, which will, eventually, be a source of enjoyment and pleasure, to many who little expected to realize it.

Another great difficulty the planter has to contend with, is, to know what to plant; the long list of names in nurserymen's catalogues tending rather to confuse than give the necessary information. They say, "We want to plant an orchard, particularly apples, but what shall we plant?—our neighbours have orchards, but their apples are either worthless, or ripen prematurely, so that by the time they go to gather their fruit, it has all disappeared; and so that their trees are really an encumbrance, instead of a source of profit and enjoyment. We would gladly plant out an orchard, if we could get good winter fruit, which could be relied on, without having to wait eight or ten years to know what the fruit is like, and then, perhaps, be deceived."

Such are, almost invariably, the answers which are given when the subject is introduced; and, unfortunately, they are too true. And why is it so? The soil and climate is equally as well adapted to grow fine fruit as any other portion of the country. It is not in the cultivation; the trees, as a general thing, being vigorous and healthy, and occasional trees bearing heavy crops of magnificent fruit. I think the enigma can easily be solved.

Nearly all the orchards now in bearing in this part of the State, have been purchased of Northern nurserymen, or their agents, who, no doubt, were honourable men, and sent such varieties as they knew to be good in their own latitude, but which, when brought here, have proved to be worthless, thereby giving general dissatisfaction and disappointment. Such will always be the case, when Northern varieties are brought South. I do not wish it to be understood that I condemn all apples of Northern origin; for, among our best apples, a few varieties hail from the North; but the proportion is small, indeed—and until our Southern apples are more widely disseminated and better known, the impression will exist, that "apples don't suit our climate." I am aware our views differ somewhat upon this subject, judging from your remarks in the February number, upon "The Apple in Ohio," and upon the article from the Report of the Ohio State Board of Agriculture. From my own observations, I think the writer of that article is pretty correct in his statement as to the varieties of apples best suited for Central and Southern Ohio, and I must confess your analysis, in my opinion, goes far to prove he is correct, rather than the reverse. In the first place, it proves that Northern varieties were better known than others, from the fact that their orchards were planted with trees procured from the North; consequently, when the vote was given, it was for those varieties best known in the locality where the vote was taken. Now, is it not probable, that if the Pryor's Red, Rawle's Jannet, and the Wine sap, had been known, they would have taken the place of some of the varieties named? I know those varieties to be universal favourites throughout the Western States, wherever known. Upon the same principle, if the question was asked in every county in Maryland and Delaware, What is your best Apple? a large majority of the answers would be in favor of the Winter *Catlin*, yet we have many apples superior to the Catlin, but not so well known, and, consequently, not so popular.

There is another portion of that report which goes far to strengthen my opinion: it is, that only half the counties in the State are reported in that list, and the omissions are mostly in the *Southwest*. It is probable that the varieties named may do well in the Northern part of the State, which, if taken farther South, would be nearly worthless. After seeing the different varieties tested for the last fifteen years, and among them all the noted Northern varieties, I have found that those apples which have originated in Southern Pennsylvania, Maryland and Virginia, (and, as I stated before, with an occasional Northern variety,) are our most valuable apples; a list of which, if acceptable, I will give you at some future time, with the general character of each, and their time of ripening. I have a number of varieties which I have recently procured, through the kindness of J. Van Buren, Esq., of Clarksville, Georgia, and from other sources, nearly all of which are of southern origin; but as it will be necessary to place them all upon the trial list, it will be several years before an opinion can be passed upon their merits.

Yours, respectfully,

D. M. Reichard.

*Cedar Glen, Pr. Geo. Co., Md., Feb. 7th*, 1859.

☞Mr. Morgan, of Fallstown, Harford Co., Md., has sent us seeds of the genuine Marrow Squash, for which he will please accept our thanks.

## COMPARATIVE VALUE OF ROOTS.

Mr. Editor :—Will you, or some of your readers, inform me what is the comparative value of roots for cattle and hogs?

There are many farmers that practice feeding roots that have never made any accurate estimate of their value, compared with different kinds of grain, hay, &c.

In conversation with a gentleman upon this subject, he said, that he had practised feeding his horse with eight quarts of oats and eight quarts of carrots a day, and that he performed more labour and was in better condition than when fed sixteen quarts of oats a day. In this case a bushel of carrots is equal in value to a bushel of oats.

What is the value of ruta bagas, carrots, beets, parsnips and potatoes, compared with rye, oats, peas, barley, buckwheat, corn and hay, when fed to cattle and hogs?

I want to investigate this subject, and take this course, hoping to receive information from those who have made accurate experiments; and any such information will be gratefully received by a

Subscriber.

*Fort Fairfield, June* 23, 1858.

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Note.—We have several times given statements by chemists and others, of their experiments to ascertain the comparative value of the different roots and other substances used for fodder—good hay being the standard.

In No. 21, Vol. 21, we published the following editorial upon this subject, which may give some light to our friend by way of an answer to his queries :

It is a great object to the farmers of Maine to raise a supply of the best kinds of fodder for their stock during the winter. Hay, we all know, is the great dependence—the staple material for this purpose, but there are many other crops which can be raised to advantage among us, and which are very valuable for furnishing food to stock, and thereby saving hay.

In order to ascertain the real value of these crops for the purpose above named, it will be necessary to compare the nutritive properties of the several articles with good hay as the standard.

Experiments, and close and careful comparison of the results of many trials, have given the following as the comparative difference between the articles mentioned and good hay. We have published these results before, but we now put them in tabular form, so as to give the reader an easier mode of comparing them :

100 pounds of hay are equal to
275 pounds of green Indian corn.
443 pounds of rye straw,
164 pounds of oat straw,
153 pounds of pea straw,
201 pounds of raw potatoes,
175 pounds of boiled potatoes.
339 pounds of mangold wurtzel,
304 pounds of turnips,
54 pounds of rye,
46 pounds of wheat,
59 pounds of oats,
45 pounds of peas and beans,
64 pounds of buckwheat,
57 pounds of Indian corn,
68 pounds of acorns,
105 pounds of wheat bran,
109 pounds of rye bran,
167 pounds of wheat, pea, and oat chaff,
179 pounds of rye and barley.

From this "bird's-eye view," it will be easy to calculate the *fodder* value of any of the above articles which you may raise. For instance, if you have 504 lbs. of turnips, they will give as much nutrition to your cattle as 100 lbs. of good hay, or in other words, it will take 5 lbs. of turnips to be equal to 1 lb. of hay.

An ox, it is said, requires 2 per cent. of hay per day if he does not work, and 2½ per cent. if he works. Suppose, therefore, you have an ox that weighs 1500 lbs., he will require 30 lbs., of hay per day if he does not work. But you wish to feed him in part with turnips. If you give him 15 lbs. of hay, how many pounds of turnips must you give him to make up the supply? Ans. 75 lbs., which, to the bushel, will be 5 pecks.

Again, according to the table, a little more than half a pound of Indian corn is equal to a pound of hay. If, therefore, you give the same ox but 15 lbs. of hay, how much Indian corn must he have to supply the 15 lbs.? Ans. A little over 8½ lbs. Allowing corn to weigh 50 lbs. per bushel, it will take 5 quarts and a third.

Allowing the estimates in the table to be correct, they will be a convenient guide to farmers in feeding cattle, &c., on other articles, in order to save their hay.

A milch cow is said to require 3 per cent. of her weight per day. A sheep, full grown, 3½ per cent.—*Maine Farmer.*

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## PROFITS OF AN ORCHARD.

It is reported that one of our farmers in the neighbourhood of Nashville, has, this fall, after making a large amount of cider and vinegar from his orchard, sold the balance of his apples to a New Yorker for $900, and the New Yorker claims that he will realize six thousand dollars by the operation.

We suppose there is little doubt of his being able to do it. The orchard consists of some 5,000 trees that have just come into bearing. The enterprising proprietor has twelve thousand trees already set out, and will soon have an orchard that will yield him an immense revenue.

One hundred acres of orchard will contain some six thousand trees, and they will yield enough the sixth year after planting to pay all expenses, of trees, planting and cultivation. When in full bearing, they will furnish some three barrels of apples to the tree, every other year. If the orchard is on any of our railroads, the apples will nett two dollars a barrel, or six dollars to the tree, which will be equal to three dollars to the tree every year.—Thus we see the handsome annual income from one hundred acres, or an orchard of 6,000 trees, of eighteen thousand dollars. If those statements are exaggerated by one-half, it will be seen at a glance, that nothing promises half so well. But there are a thousand facts that prove this estimate below instead of above, the reality.

Tennessee has a position among her sister States, that enables her to supply them with many valuable things, but the day will come, when her fruit and vintage will be one of her most pleasant and profitable sources of income, and the market cannot be overstocked.—*Homestead (Southern.)*

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☞We are indebted to John Merryman, Esq. of Hayfields, Baltimora County, Md., for very large mushrooms.

# AMERICAN FARMER.

Baltimore, March 1, 1859.


## TERMS OF THE AMERICAN FARMER.


Per Annum, $1 in advance—6 copies for $5—13 copies for $10—30 copies for $20.

NOTICE.—Price, if not paid within 6 months, $1.50 per year.

ADVERTISEMENTS.—For 1 square of 8 lines, for each insertion, $1—1 square per annum, $10—larger advertisements in proportion—for a page, $100 per annum; a single insertion, $15, and $12 50 for each subsequent insertion, not exceeding five. Address,

N. B. WORTHINGTON,
Publisher of the "American Farmer,"
CARROLL HALL, S. E. cor. of Baltimore & Calvert sts,
Baltimore.


## ADVERTISING vs. PUFFING.

We have received from a gentleman, a city paper, containing a favourable notice of an article of merchandize, in which he is interested, and marked "please copy." With a disposition to oblige every body, as far as we can, there are reasons why we must decline applications of the kind, and not to appear unreasonable or disobliging, we will give them.

First—a due regard to the prosperity of our advertising columns forbids, that an article, which is a legitimate subject of that portion of our publication, should be inserted as reading matter.—To copy such an article as a matter of interest, and thus give it a *quasi* endorsement, would be worth much more to the party interested than an ordinary advertisement, and *much less* to us.

In the second place, our readers have a right to infer, that whatever we present to them in our columns of reading matter, is, in our opinion, of sufficient interest to command their attention, and if we, as a matter of favour, insert a special commendation of one super-phosphate, for instance, or one plough or implement, to the exclusion of others, we not only do injustice to others, so far as our opinion is worth anything, but allow a false inference as to our estimate of its value.

In the third place, we abominate the practice of "puffing," and will allow no man to stand behind our editorial chair, for the purpose of "blowing" his wares into public favour. An advertisement, where a man in his own name offers his goods to the public, is a fair, open, legitimate transaction. The party interested says what he has to say, or what others have said, in favour of his goods.—No one is necessarily misled by it, even if it is over-coloured or untrue; because the very type gives him warning that he is to be on his guard, to discriminate between the absurd exaggerations of flash "catch-pennies," and the sober man of business, who, in the consciousness that he has an article of substantial value for sale, is satisfied to say what he has to say, without designedly overstating or unduly exaggerating its merits. But an advertiser who "climbs up some other way" into notice, and gets the editor, either for pay or favour to say for him, what he thinks might not be believed or attended to as coming from himself, does, in our opinion, what he ought not to do. He intends to make a false impression on the public mind, that there are peculiar merits in his merchandize, which challenge the spontaneous notice of intelligent and disinterested parties. This we call "puffing," as distinguished from advertising.

We wish our own course to be distinctly understood on this point. We have not unfrequently had it suggested as a legitimate business transaction, that a favourable editorial notice would be paid for as an advertisement. The answer to this is, that when a matter of the sort is, in our view, of sufficient interest to put into the body of our Magazine, it is our duty to put it there, and we would not, of course, receive pay for doing so. If it is not of such interest, it is an imposition upon the reader to have it there at all. If it conveys a false impression of the editor's opinion, it is a fraud. The only value of such a notice, is in the reader's reliance upon the candor and good faith of the editor; and it would be a gross abuse of that confidence, to subject his opinions to any such bias.

While our rule, therefore, does not exclude a proper notice of new and interesting matters of merchandize, under no circumstances do we, or will we, for any consideration, take advertising matter to appear in any other than our usual advertising type, or receive compensation for one line that goes into the body of our Magazine.

SOMERSET CO., PA., Feb. 10th, 1859.

*To the Editors of the American Farmer:*—

DEAR SIRS:—I let you know that we are all well at present, and hope that these will find you also; and further, I delayed so long in sending you the money, in case of the scarcity of the money. You will find one dollar enclosed in this letter, for the present volume of the Farmer; please send me a receipt.

The above anonymous communication was duly received at our office, with one dollar enclosed. Not knowing who he is, or where a private letter would find him, we take this means of informing our affectionate and well beloved friend, that the state of our health is reasonably good, considering the damp weather. The dollar sent adds to our comfort. If our correspondent will give us his name and post office we will not only give him proper credit on our books, but "a place in our memory," among those highly cherished friends, who appreciate our labours, and *pay, punctually, their bills.*

## THE PERUVIAN GUANO TRADE.

It is stated in the daily papers that the State department is about to submit to Congress a long correspondence on the Guano Trade, between this country and Peru, under the call of the following resolution presented by Mr. Slidell in the Senate:

*Resolved*, That the President be requested to communicate—if, in his opinion, it be not incompatible with the public interest—any correspondence with the government of Peru or its agents on the subject of trade in guano, and all information which may tend to explain the manner in which said trade is regulated, and whether such regulations have not the effect unduly to enhance the price of guano to the consumer, or to deprive vessels navigating under the flag of the United States of the fair and equal competition with those of other nations, guaranteed by the treaty with Peru of the 19th of July, 1852, and, if so, whether any and what regulations are expedient to counteract the effect of such regulations.

The correspondence, we understand, will show that Peru extends her system for monopolizing the sale of guano, not only to its shipment from the Chincha Islands, but into all the ramifications of its distribution, handling and sale, in every part of the United States, and that this system of monopolizing its freightage, and retail sales, doubles the cost to the consumer, while the Government of Peru gets no advantage whatever from it. It is further said, that Mr. Clay, United States Minister to Peru, has informed the State department that all hope that any reduction in the prices at which Guano is now sold, in this country, can be brought about, by negotiation, is abandoned; all classes in Peru agreeing that as the deposits are national property, the government is bound to see that they produce the greatest amount of revenue.

Now if that government really received from this source of wealth "the largest amount of revenue," we cou'd hardly find fault with it for making the most of its own means. But it has been ascertained from official sources that the average yield to the government has not exceeded $14 per ton, and the price of freight, now, we learn, does not exceed $10. Nearly the whole difference, therefore, between $24 and $60, the selling price, goes into the pockets of a few monopolists, who will soon be rich enough, by means of this enormous tax upon the farmers and planters of this country, to buy up the whole Peruvian Government.

We are no advocates of Filibusters, but if we had any influence with Walker, short of persuading him to earn an honest livelihood, we should turn his attention from Nicaragua to Peru.

☞A circular descriptive of the Cherry Currant and of "how to grow them" has been received by us from Charles F. Erhard, of Ravenswood, Long Island, N. Y.

## FORMATION OF THE CELLS OF BEES.

At the twenty-eighth meeting of the British Association, for the Advancement of Science, held in October last, an interesting paper by Mr. W. B. Tegetmeier, was read by one of the members. The following is a report of the contents of this paper, and of the observations of the members of the Section of the Association, before which it was read, upon the subject of the Formation of the Cells of Bees. *Mr. Tegetmeier* says:

"Having recently been engaged in making a series of experiments, with a view to determine the typical form of the cells of bees; and having arrived at some interesting results, I am desirous of bringing them before the members of the British Association.

My first experiment consisted in placing a flat parallel-sided block of wax in a hive containing a recent swarm. In this, cells were excavated by the bees at irregular distances. In every case where the excavation was isolated it was *hemispherical*, and the wax excavated was added at the margin, so as to constitute a *cylindrical* cell. As other excavations were made in contact with those previously formed, the cells became flat-sided, but from the irregularity of their arrangement not necessarily hexagonal. When the block was coloured with vermillion, the employment of the excavated wax in the formation of the sides of the cells was rendered more evident. The experiment has been repeated with various modifications as to the size and form of the block of wax, but always with the same results,—namely, that the excavations were, in all cases, hemispherical,—that the wax excavated was always used to raise the walls of the cells,—and that the cells themselves, before others were formed in contact with them, were always cylindrical. Mr. Charles Darwin, to whom I communicated these facts, has repeated the experiments with similar results. When these experiments are taken into consideration, in connexion with the facts, that in the commencement of a comb, the rudiments of the first-formed cells are always hemispherical; and that in a small extending comb, the outer sides of the bases of the external cells are always circular, they appear to lead to the conclusion, that the typical form of a single cell is cylindrical, with a hemispherical base; but that, when the cells are raised up in contact with one another, they necessarily become polygonal, and if regularly built, hexagonal. On this supposition alone can those numerous cases be accounted for in which one-half of a cell is cylindrical, the other polygonal. In all such cases it will be found that, in the cell adjacent to the cylindrical side, there is not room, (owing to some irregularity of the comb) for a bee to work,—consequently, the cylindrical development is not interfered with. The formation of the small cylindrical cells surrounding the queen cell appear to admit of no other explanation. The mode in which the circular bases, situated at the thin edge of a comb in the process of enlargement, become converted into polygonal cells as new bases are formed on their outer sides, has been beautifully shown by Mr. Darwin. In repeating, with many ingenious modifications, my original experiments, he coloured, with vermillion and wax, the circular edges of the bases of the external cells in a small comb. On replacing this

in the hive, he found that the walls of the cells were not raised directly upon their circular basis, but that, as other cells were built external to them, the coloured wax was remasticated and worked up into the polygonal sides of the cells,—consequently, the colour, instead of remaining as a narrow line, became diffused over a considerable portion of the sides of the cells. These observations have been much facilitated by the employment of a hive having each side formed of four parallel plates of glass, with their strata of air between. As thus formed, the escape of heat is so effectually prevented that the bees work without the necessity of covering the hive with any opaque material, and thus they are always open to observation, without being disturbed by the sudden admission of light into a hive previously dark. Crude and imperfect as these experiments may be, they appear to me to have an important bearing on the theory of the formation of cells, and my desire that they may be repeated and extended by other observers must plead my excuse for bringing them before the notice of the Association."

DR. WHEWELL, communicated some observations from Mr. Ellis, 'on the cause of the Instinctive Tendency of Bees to form Hexagonal cells.' He supposed that the bee was led to the exercise of this instinct by the use of their organs of sight. It was well known that, in addition to their facetted eyes, they had three single eyes; and he supposed that these eyes were placed in such a position as to enable them to work within such a range as to give the walls of their cells an angle of 120 degrees.

MR. J. LUBBOCK, gave an account of the experiments by Mr. Darwin, in which he had found that bees made circular cells in the circumference of their combs, but that these were always worked again into an hexagonal form, when another one was placed beyond them. That the material of the circular cell was renewed for this purpose, he had ascertained by painting the outside of the external row of cells with carmine, indigo, and other substances, which were invariably worked up into the next row of cells. In answer to Mr. Ellis' theory of the eyes, he could state from observation that bees in ninety-nine cases out of a hundred worked in the dark. Wasps made hexagonal cells from the beginning. He believed the tendency of bees to make hexagonal cells was acquired, and that originally bees made circular cells, but from a deficiency of material, had at last acquired the habit of making hexagonal cells.

MR. BAYLDON stated that he kept a large number of bees, and that he had seen them make hexagonal cells at first. The outer cells alone were circular.

DR. LANKESTER said it was an interesting physiological question as to whether the eye or some other organ was the first recipient of the impression which induced the movement that resulted in the bees' work. An impression must be made on some organ of the animal, as all the actions of the lower animal were excitomotory, and, probably, the antennœ were the organs acted on.

DR. EDWARDS suggested that the materials with which the bee worked were sufficiently receptive of light to act upon their organs of vision, and thus the eye might be still the excitor of the instinctive actions.

## MARCH.

The stormy March is come at last,
With wind and cloud and changing skies;
I hear the rushing of the blast
That through the snowy valley flies.

Ah! passing few are they who speak,
Wild, stormy month! in praise of thee;
Yet, though thy winds are loud and bleak,
Thou art a welcome month to me.

For thou to northern lands again
The glad and glorious sun dost bring,
And thou hast joined the gentle train
And wear'st the gentle name of Spring.

And in thy reign of blast and storm,
Smiles many a long, bright, sunny day,
When the changed winds are soft and warm
And heaven puts on the blue of May.

When sing aloud the gushing rills,
And the full springs from frost set free
That, brightly leaping down the hills,
Are first set out to meet the sea.

The year's departing beauty hides
Of wintry storms the sullen threat;
But in thy sternest frown abides
A look of kindly promise yet.

Thou bringest the hope of those calm skies,
And that soft time of sunny showers
When the wide bloom on earth that lies
Seems of a brighter world than ours.

BRYANT.

## WORK IN THE GARDEN.

*Early Potatoes.*—These may be planted immediately. Cut the potatoes for planting some days before hand, and roll in plaster. Plant in drills and put the manure, some rich compost, on the potatoes, before you cover. Early potatoes have been a precarious crop for some years past, owing to the dryness of the season when the tubers are forming. A good plan to ensure a crop for your family use, is to plant closely and cover all the ground with straw or other litter, six to eight inches in depth.

*Early Peas.*—These should be planted without delay, when the ground is in order. Plant double rows, six inches apart.

*Cabbage Plants.*—Sow seeds of early and late sorts in the open ground whenever in good order.—For the late and main crop, sow seed this month, very thick, on well manured ground. Early York

planted on ridges in the Fall, should now have the ridges levelled down.

*Beans.*—String beans should be planted late this month.

*Lettuce.*—Lettuce seed may be sown in open border; and if you have plants they may now be set out.

*Radish Seed*—may now be sown.

*Carrots, Beets and Parsnips.*—These may now be drilled in, in well manured ground.

*Tomato and Egg plants.*—Sow seeds of these in an open border. The plants will be better for late crops, than such as you will get from hot beds.

*Celery.*—Sow celery seed for early use.

*Asparagus beds.*—Old beds should be dug and manured early, if this has not been done in the Fall, giving at the same time a dressing of ashes and salt. If you are about to plant a new bed, give the ground a very thorough digging, full two spits deep, and manure heavily. Seeds for a new stock of plants may now be sown in a bed.

*Seeds.*—Set out cabbages for seed, and the stalks for early greens. Set out beets, parsnips, turnips, &c., for seed.

*Onions.*—Onion sets should be planted out for early crop. For a main crop, sow seeds early and keep them strictly clear of weeds, and they will grow amply large by Fall. They should have a finely worked and thoroughly manured bed.

*Composts.*—Continue to prepare, under cover, or well heaped out of doors if necessary, rich composts of stable and other strong manures, with leaf-mould from the woods. Turn them occasionally, and have a supply on hand always for such crops as may need it.

*Rhubarb or Pie plant.*—Set out plants of this and sow seeds.

*Medicinal and other Herbs.*—Set out rooted plants and sow seeds.

FRUIT DEPARTMENT.

*Pruning.*—Let all necessary pruning be done at once. Apples, pears, peaches, quinces, grapes, gooseberries, and currants, should all be pruned, if not already done.

*Raspberries and Blackberries.*—Trim out all of the old stems, leaving three or four stems of last years' growth for bearing to each stool.

*Planting.*—Let all plantings of trees and shrubs be made this month.

## FLORICULTURE—March, 1859.

*Prepared for the American Farmer, by W. D. Brackenridge, Florist and Pomologist, Govanstown, Balt. Co., Md.*

*Greenhouse and Conservatory.*—In fine weather, admit a free circulation of air to these structures, during the early part of the day, and close up the sash again, so soon as the sun begins to decline. Where the houses are what is denominated "lean-to," or with the sash fronting in one direction only, the plants will naturally throw out their leaves and flowers towards the light; therefore, they ought to be frequently turned round, so as to form symmetrical heads, and not one sided, as in such cases they are too often found to be. Fumigate with tobacco at least once every two weeks; do this in a calm evening, and, if possible, in dull cloudy weather; and as the season gets warmer, syringe more freely overhead—and discontinue artificial heat so soon as possible, as the temperature can frequently be kept up to the required degree, by shutting up the house early in the afternoon, as directed above; the heat of no plant structure should be kept so high during the day as in the night, by 10 to 15 degrees; by this means you will save fuel, and such a temperature will be more congenial to the health of plants.

*Camellias.*—These will now be making their young growths, and should be partially shaded; this is effected by a screen of thin muslin, on the out or inner side of the sash, attached to a long round rod, which is lowered and raised by light ropes and pulleys; or by white-washing the inside of the sash with a mixture of rye flour and whiting. The temperature should now be kept a few degrees higher, and the atmosphere somewhat more humid, by giving water freer at the roots, and syringing overhead in mild weather. Any inarching neglected, had better now be deferred until May or June; but such plants as require larger pots, may yet be shifted.

*Dahlias.*—Where a great many duplicate plants of any kind are wanted, the roots of such should now be placed in a hot bed, or warm part of the Greenhouse, and when they have made shoots from 3 to 4 inches long, these should be cut off, inserted in two inch pots, and placed in a hot bed, where they will form roots in eight or ten days. Dahlias may also be propagated by division of the dry roots.

*Fuchsias*—that have filled the pots with roots, will require to be shifted into that size in which they are to bloom. Now is a good time to put in cuttings of this beautiful tribe.

*Achimenes and Gloxinias.*—The remainder of the roots of these may now be potted, and such as were started in January, may now be shifted into larger pots.

*Pelargoniums.*—Some of these will now have begun to shew their blooms; give water and air more freely, and keep the plants close to the glass; syringe and fumigate occasionally, to keep the leaves clean and free from insects.

*Pansies.*—Pot off those sown in January, and such as are become pot-bound; where fine large blooms are wanted, may be shifted into six or seven-inch pots.

*Cactuses* and other succulent plants can now receive a more liberal supply of water.

*Euphorbia, Jacquinæflora and Poinsettias*—that have done blooming, should now be cut back, and watered but sparingly, until they begin to grow again.

*Ericas and Epacrises*—ought still to be kept in a cool, airy part of the house; shift into larger pots such as require it, and pot off any cuttings that may have made roots during the winter; drain the pots well, and for a compost, use one-third woods earth—in which Kalmias and Vaccinium

are found to grow—one-third rotted loamy sod, one-third sharp clear sand.

*Roses*—in pots, may be watered with liquid manure at least twice every week; pot off such cuttings as may have been struck late in the fall or winter.

*Alstræmerias.*—Begin immediately and shift a portion of these.

*Lemon and Orange Trees*—may now be grafted; and shift such plants as may require it, into larger pots.

*Tender Annuals.*—Sow seeds of these in a mild hot bed, or in boxes, to be placed in the Greenhouse.

OPEN GROUNDS.

*Hyacinth and Tulip Beds.*—If the weather proves warm, the covering put on in the Fall should be partially removed, and the surface between the rows stirred up with a light hoe.

*Roses.*—If towards the end of the month the weather appears to be settled, such as have been protected, may be uncovered and pruned.

## CIDER—PROF. HORSFORD'S RECIPE.

In the Farmer for January we gave a copy of the letter of E. N. Horsford, Prof. of Hort. Chemistry, addressed to the President of the Massachusetts Hort. Society accompanied by his Recipe for the improvement and preservation of cider by the use of sulphite of lime. We find in the "*Transactions*" of that Society for 1858, the following additional communication from Prof. Horsford, addressed to the same officer in reference to the subject of his Recipe, explanatory of the mode in which the ingredients prescribed act, chemically, and containing other information valuable and interesting:

*To the President of the Massachusetts Hort. Society*—

The following question has, within the last few days, been repeatedly addressed to the undersigned:—

"May not the sugar prescribed in the recipe for improving cider, published by the Massachusetts Horticultural Society, be omitted, and the sulphite of lime added directly to the new cider?"

The reply may seem somewhat circumstantial, but it will avoid unnecessary details, and be as brief as the question permits.

The juice of the apple may be regarded as water containing grape sugar in solution, and albuminous substances in solution and suspension. The other ingredients, including the sources of the peculiar taste and bouquet, need not, for the purposes of this note, be taken into account.

Simple grape sugar dissolved in water does not ferment. Albuminous matters of fruit, on the contrary, dissolved or suspended in water, ferment spontaneously. But if grape sugar be dissolved in water containing albuminous matter, the sugar will ferment from contact with the fermenting albuminous matters. Cane sugar, under like circumstances, becomes first grape sugar, and then ferments. Starch experiences a like change. The first result of fermentation of the grape sugar is alcohol and carbonic acid. The second result is acetic acid, and requires exposure to the air.

There are, in the apple, three conceivable cases of relation of albuminous matter to sugar. First, when there is just sufficient albuminous matter to convert by fermentation all the sugar into alcohol and carbonic acid; second, where there is excess of albuminous matter; third, where there is excess of sugar.

The *first* case would yield, after the fermentation was over, simple alcohol. The *second* would yield alcohol and acetic acid—the latter to the exclusion of the former in some proportion to the excess of albuminous matter. The *third* would yield a mixture of sugar and alcohol.

The result, in the first case, would be a solution of alcohol with somewhat of the taste and flavor of the apple; that in the second would be cider vinegar, and in the third a kind of dilute cider cordial. As access to the air is understood in all the three cases, there would remain only as much carbonic acid as was due to its solubility.

Now we have an agent which will withdraw the albuminous matter (always in excess) from cider at will. If we apply it to the juice of the apple, as it falls from the press, we shall leave behind sweetened water. If we withhold it altogether, we shall have acetic acid and water—or cider vinegar. If we apply it after fermentation has been some time in progress, without exposure to the air, we shall have a weak solution of alcohol and sugar. If, with exposure to the air, up to the time the agent is applied, we shall have sugar, alcohol, and a little acetic acid. If now, with an invariable excess of albuminous matter, we add more sugar, we shall have more alcohol, with the same measure of acetic acid as before.

It is not unusual to add sugar to the juice of the grape in the production of certain kinds of wine. Here follow the proportions of these ingredients in several well characterized fermented wines. A sample of cider is given for comparison. [Acetic acid is replaced to some extent by tartaric, malic, and other acids.] The alcohol is given in per cents by volume, the sugar in per cents by weight, and the acid in the number of parts by weight, of caustic potassa, required to neutralize 100 parts of the wine:—

| Name. | Alcohol. | Sugar. | Acid. |
|---|---|---|---|
| Cider, | 5.04 | 0.00 | 44 |
| Claret, | 9.11 | 0.00 | 38.52 |
| Burgundy, | 10.13 | 0.00 | 38.61 |
| Johannesberg, 1842, | 10 | 0.42 | 38.52 |
| Hockheim, 1846, | 11.05 | 0.44 | 37 |
| Marcobrunn, 1822, | 12 | 0.24 | 40 |

It will be seen that these fermented wines, aside from their peculiar taste and bouquet, are nearly allied to cider. The wines have more alcohol, and some of them have sugar. The claret and Burgundy in the samples analyzed had no sugar, because it had, by fermentation, as in the case of the cider, been converted into alcohol, and to some extent into acetic acid. To secure the increased quantity of alcohol and sugar, provision is made in the receipt above alluded to; and to guard against excessive fermention, by which more alcohol than is desirable, or more acetic acid than is acceptable, would be produced, sulphite of lime is employed.

*Time* is given in the recipe, for the well-known reason that, as a general thing, age improves all beverages in which the proper proportions of ferment and sugar are present. The finer products that are especially acceptable to the palate re-

quire a more nicely regulated temperature and generally more care. They are easily destroyed by rapid and excessive fermentation, by too high heat, by the presence of the juices of defective fruit, by unnecessary exposure to the air, and by various other agencies—to guard against which, altogether, requires a degree of qualification that science without experience will probably never be able to give.

It will be seen from the above that the sugar may be omitted, and the sulphite of lime added directly to the apple juice, as it flows from the press, or at a period a little later when fermentation has improved its taste; but at the best it will produce a beverage inferior to that in which more vinous fermentation is permitted, and extended through a longer period. It will resemble cider that has been boiled to coagulate the albuminous matters, or filtered through sand, to separate them. It will be comparatively insipid.

More sulphite of lime will be required if the sugar be withheld. Fortunately, as the sulphite is rendered soluble only in the presence of acid, an excess will do no harm.

E. N. HORSFORD,

*Prof. Hort. Chemistry to the Mass. Hort. Soc.*

CAMBRIDGE, November 19, 1858.

## ON FATTENING ANIMALS.

The fattening of animals is a subject of universal interest and no point of rural economy should be more carefully looked to by the farmer.

The following suggestions are judicious and to the point though not new, and are worthy of careful perusal:

1. The breed is of great importance. A well bred animal not only affords less waste, but has the meat in the right places, the fibre is tender and juicy, and the fat is put on just where it is wanted. Compare the hind leg of a full-blood Durham ox, and a common one. The bone at the base of the tail extends much further in the former, affording more room for flesh, and the thigh swells out, of convex or circular shape; while in the common ox it falls in, dishing and hollow.—Now the "round" is the most valuable cut, and is only found in perfection in high-bred stock. The same is the case over the whole body. So well do Eastern butchers understand this, that their prices are regulated by the breed—even where two animals are equally fat. They know that in a Durham or Hereford ox, not only will there be less offal in proportion to weight, but the greatest quantity of meat will be where it brings the highest price when retailed; and will be of a richer, and more tender fibre. The same is the case with hogs. A large hog may chance to make more meat on a given quantity of food than a small one, but the meat of the first will be coarse and tasteless compared with the other, and in the East, flavour and tenderness greatly regulate prices.—Consequently, moderate-sized, short-legged, small-headed hogs, always, in the long run, beat large breeds out of favor. There is nothing more certain than that one kind of animal will fatten to a given point on much less food than another; and as fattening our stock is only another mode of selling our grain and grass, those animals are to be preferred which come to maturity soonest, and fatten on the least food. The difference in hogs is very great and important. While some breeds must be fed for two, or even three winters, others are full grown and fattened at ten months old; and the difference in profit is enormous. We cannot go into particulars, but the following rules may be considered as applying to all: All animal meat may be expected to fatten easily when it has fine, soft, elastic skin, with thin or silky hair; the head and legs short, the 'barrel' large, but chest and lungs small; and when it is quiet, sleepy and easy in temper. An unquiet, restless, quick-tempered animal is generally a bad feeder, and unprofitable.

2. Much depends in fattening, on outward and mechanical management. Fat is carbon, or the coal which supplies the body with heat. If we are exposed to cold, it is burnt up in our lungs as fast as it is deposited by the blood, but if we are kept warm, by shelter or clothing, it is deposited throughout the body, as a supply on hand when needed. Warm stables and pens are a great assistance in fattening, and should never be neglected. So, also, quiet and peacefulness are important. Every excited action consumes some part of the body, which has to be supplied by the food, and detracts from the fat.

3. Ground and cooked food fatten more profitably than raw food. Mr. Ellsworth found that hogs made as much flesh on one pound of corn, ground and boiled to mush, as two pounds raw, unground corn; though the first did not fatten quite as rapidly, as they could not consume as much food in the twenty-four hours. By grinding and steaming ten hogs will each gain 100 pounds in weight on the same food that five would do it if it were raw.

4. A change of food helps in fattening. Thus an ox fed entirely on corn and hay, will not fatten as fast, or as well, as one which has roots, pumpkins, ground oats or buckwheat, ect., fed to it at regular intervals. The latter may contain intrinsically less nourishing matter than the corn, but the change produces some unknown effect on the stomach and system, that adds to the capability of depositing fat. The best feeders change the food very frequently, and find that they make a decided profit by so doing. Salt should be given with every meal to cattle—say an ounce a day.—It preserves the appetite and prevents torpor of the liver, to which all fattening animals are subject. This torpor, or disease, is to a certain extent conducive to fat; but carried too far, the animal sinks under it.

5. In cattle the skin should be particularly attended to. A fat animal is in an unnatural state, and consequently subject to disease. Taking no exercise, it has not its usual power of throwing off poisons out of the system, and if the skin is foul, the whole labor is thrown on the kidneys.—It is found by experience that oxen, regularly curried and cleaned daily, fatten better and faster than when left to themselves, and if the legs are pasted with dung, as is too often the case, it seriously injures the animal.

6. Too much rich food is injurious. The stomach can only assimilate a certain quantity at once. Thus an ox will prosper better on thirty pounds of corn and thirty pounds of cob ground together daily, than on forty pounds of ground corn. These mixtures are also valuable and saving of cost for hogs when first put in the pen.—If an animal loses its appetite, the food should at

once be changed; and, if possible, roots, pumpkins, or steamed hay may be given.

7. Oxen will fatten better if the hay or stalks are cut for them, but care must be taken not to cut too short. An inch in length is about the right size for oxen, half or three-quarters of an inch for horses.—*Farmers Com. and Hort. Gazette.*

## ON SOME NEW VARIETIES OF GUANO.

BY PROF. ANDERSON, OF EDINBURGH.

During the first ten or twelve years after the use of guano became common in this country, the supply equalled, if it did not exceed, the demand, and the farmer had the opportunity of choosing between Peruvian and some other varieties—such as Ichaboe and Saldanha Bay—which, though inferior, were good, serviceable guanos, and in some soils gave as good or even a better result than the more expensive kind. The deposits of the latter, which appear not to have been large, were exhausted very rapidly, and their place has since then been very imperfectly supplied; for notwithstanding an active search in all parts of the world, and the discovery of numerous deposits, some of them of very considerable extent, the quality has generally proved very inferior; and as yet, none comparable to Peruvian, and very little which will bear comparison even with Saldanha Bay, has been discovered. The importations of new and inferior guanos have nevertheless been very large, and we shall certainly be very greatly within the mark if, excluding all the better kinds, we estimate the quantity of the inferior guanos which have reached the British Islands within the last five years, at a hundred thousand tons. Much of this is almost absolutely worthless; but, taking a general average, their value, as indicated by many analyses made in my laboratory, does not exceed £3 or £4 perton. The cost of importing a guano, including expense at the place of loading, freight, and charges in this country, certainly cannot fall short of £5 or £6 per ton; and when profit to the importer and retailer is added, the cost to the farmer, at the very lowest possible estimate, must exceed £7 per ton. If these calculations be correct—and they are undoubtedly all below the truth—either the importers of guano or the farmers must, during these five years, have incurred a loss of from £300,000 to £400,000. It is a question of considerable interest to determine which of these two parties has been the loser; and it requires but little consideration to see that, though the importers may not have been scatheless, the main bulk of the loss must have fallen on the farmers. It is well known to all persons acquainted with commercial matters, that, though not very saleable, these guanos are eventually got rid of. Some of them are used for adulterating Peruvian guano, but the bulk reaches the farmer directly. Now, it is only necessary for the farmer to ask himself whether he has ever bought a guano at £3 per ton, or seen one in the market at that price, to enable him to draw his own conclusions; and he may rest assured, that if, during the last five years, he has bought a guano at £7 or £8 per ton, without seeing or understanding the analysis, the chances are that he has paid for it nearly double its real value.

The cure for this, no doubt, is in the hands of the farmer himself, if he chooses to make use of it; but there is so much inertness and indifference that things can only be made right by the discovery of large supplies of guanos of better quality than those recently discovered; and this cannot be done until importers employ persons of skill and experience in the search. At present every thing is intrusted to the ship captains, who judge of the quality of the guano by all sorts of rude and insufficient tests. Meanwhile an increased supply of really good guanos, of uniform composition, is a matter of the highest moment, and I have always looked upon it as one of my most important duties to watch for, and bring under the notice of agriculturists, guanos likely to prove useful, or which are of manifestly inferior quality.

On the present occasion, I have the satisfaction of directing attention to a new guano, which seems likely to be a very important boon to the farmer. It is met with on a small island in the Pacific, apparently of the coral formation. It has not yet been imported, but samples have arrived which are of a very promising kind. Two, which have been analysed, were found to contain—

| | I. | II. |
|---|---|---|
| Water, | 4.60 | 4.80 |
| Organic matter & ammoniacal salts | 16 85 | 16.20 |
| Phosphates, | 71.40 | 69.30 |
| Carbonate of lime, | 3.15 | 7.80 |
| Alkaline salts, | 3 90 | 1.07 |
| Sand, | 0.10 | 0.15 |
| | 100.00 | 100.32 |
| Ammonia, | 1.32 | 1.28 |

These samples are both very dry, and may possibly have lost some moisture during their transport to this country; but, making due allowance for this, it is obvious that this is a very excellent specimen of the phosphatic guano—of a kind which has been little seen of late years. It may be best compared to Saldanha Bay, but is superior to it in the quantity of phosphates, and if of uniform quality, will undoubtedly come largely into use. It is stated that the island contains upwards of 5,000,000 tons of guano, apparently of very uniform quality. The shore is also covered with coral sand, containing a considerable quantity of phosphates, but not sufficient to render its importation profitable. Two samples have been examined for phosphates, which showed the following per-centages:—

| | |
|---|---|
| No. 1, | 13 65 |
| No. 2, | 18.07 |

The remainder of their constituents were not determined, but they consisted chiefly of carbonate of lime. I have not been able to learn whether this guano is likely to be imported in sufficient time for the next turnip crop, but its arrival will be looked forward to with interest.

A very remarkable guano has recently been imported from the west coast of South America, under the name of Valparaiso guano. It consists of a mixture of a powder, with large lumps of an exceedingly hard reddish-brown substance, which requires a pretty smart blow with a hammer to break them. A fair sample was found to contain—

| | |
|---|---|
| Water, | 7.85 |
| Organic matter and ammoniacal salts, | 14.75 |
| Phosphates, | 20.07 |
| Sulphate of lime, | 5.56 |
| Alkaline salts, consisting principally of common salt, | 47.80 |
| Sand, | 4.17 |
| | 100.00 |
| Ammonia, | 2.21 |
| Phosphoric acid in the alkaline salts, equal to 6.43 phosphate of lime, | 2.94 |

The hard lumps, which appeared like stones, were found to have a composition differing but little from the foregoing; they contained—

| | |
|---|---|
| Water, | 5.25 |
| Organic matter and ammoniacal salts, | 13.50 |
| Phosphates, | 16.30 |
| Sulphate of lime, | 3.26 |
| Common salt, | 54.26 |
| Other alkaline salts, | 4.28 |
| Sand, | 3 15 |
| | 100.00 |
| Ammonia, | 1.77 |
| Phosphoric acid in the alkaline salts, | 0.99 |

These lumps must be looked upon as a mixture of rock-salt and guano, and it is impossible to avoid speculating as to how it could be deposited. The lumps were quite as hard as the ordinary rock-salt; and it is stated that the deposit is of considerable extent and depth. It is scarcely necessary to observe that it is not likely to prove of much use to the farmer.

Another new guano, bearing some resemblance to Ichaboe, has recently been imported; but from what locality I did not learn. It contains—

| | |
|---|---|
| Water, | 29.31 |
| Organic matter and ammoniacal salts, | 36.24 |
| Phosphates, | 22.15 |
| Carbonate of lime, | 0.43 |
| Alkaline salts, | 9.85 |
| Sand, | 2.02 |
| | 100.00 |
| Ammonia, | 6.45 |
| Phosphoric acid in the alkaline salts, equal to 2.24 phosphate of lime, | 1.03 |

The analysis was made after removal of about 3 per cent. of small pebbles; and this, along with the presence of roots, seemed to show that the deposit was probably a superficial one; or, at all events, that the cargo had been taken from the surface.

At the present time, considerable importations are being made of a mineral phosphate, under the name of Sombrero Island guano, which, though not directly interesting to the farmer, as it will probably not be advantageously applicable to the land in its natural state, is a very valuable material for the manufacture of superphosphate. The greater part of the island of Sombrero is said to be composed of this substance, which forms a bed of some forty feet in thickness. It is found in the form of a soft stone, varying from buff to pinkish in colour. It is easily pulverised, and its powder greatly resembles bath-brick in appearance. A sample examined in the laboratory contained—

| | |
|---|---|
| Water, | 8.96 |
| Phosphate of lime, | 37.71 |
| Phosphates of alumina and iron, | 44.21 |
| Phosphate of magnesia, | 4.20 |
| Sulphate of lime, | 0.85 |
| Carbonate of lime, | 3.35 |
| Soluble silica, | 0.30 |
| Sand, | 0.40 |
| | 100.00 |
| Total phosphoric acid, | 36.35 |
| Equivalent to phosphate of lime, | 79.33 |

Another sample of the same substance contained

| | |
|---|---|
| Phosphates, | 77.90 |

A considerable quantity of the phosphoric acid in this substance is in combination with alumina and iron; but this cannot affect its agricultural use. As a material for the manufacture of superphosphate, it is of much value, and, being sold at £5, 10s. per ton, it is materially cheaper than bone-ash, which, if containing 79 of phosphates, would be sold for about £7, 10s. per ton.

It is necessary to guard against confounding the true Sombrero Island guano with another substance sold under the same name, and which contains—

| | |
|---|---|
| Water, | 3.85 |
| Organic matter, | 11.50 |
| Phosphoric acid, | 25.23 |
| Oxide of iron and alumina, | 28.76 |
| Lime, | 18.19 |
| Carbonate of lime, | 2.27 |
| Alkaline salts, | 6.57 |
| Sand, | 2.60 |
| | 100.00 |
| Ammonia, | 0.22 |

In this instance the phosphoric acid is equivalent to no more than 57.70 of phosphate of lime, and the whole characters of the substance are quite distinct from those of Sombrero guano. It is much darker in colour, and resembles an ordinary guano. From some circumstances which have come to my knowledge, there is reason to suspect that it really comes from Avis Island, which is not far distant from Sombrero Island, and is known to contain a phosphorite similar, but inferior, to that from the latter locality.

*Quarterly Journal of Agriculture.*

## DOMESTIC WINES.

The rapid progress which vine culture is making in this country, is one of the best guarantees against the serious evils of intemperance, and this progress cannot fail, ere long, to give cheap wines. American champagne is gradually obtaining the reputation of being the purest effervescing wine in the world, and if, as Mr. Longworth says, we have five thousand varieties of native grapes—all of them free from the oidium, or grape disease, which is spreading over every corner of Europe—it will be seen that the West has in reserve an enormous field of productiveness to fall back on, as population grows dense, and profitable investment for capital is required.

There is an absurd idea prevalent that wine cannot be profitably raised in this country; that labour is too dear, and European opposition too great. On the contrary, wine raising is at this instant the most profitable branch of agriculture in America. It will pay from one to three hundred dollars an acre, yielding a higher profit on capital, skill, and labour invested, than any other planting.

The wines which can be most easily raised are, like those of Germany, light and very innocuous. We often hear it said that there is no drunkenness in France, but drunkenness is even rare among the wine drinking Germans of the Rhine. Liebig, the great chemist, declares that these people, far from being injured by their wine, owe to it the health for which they are so famous, there being no place in the world where there is so little demand for apothecaries' wares: But the reader will recollect that these wines are very different from those of other nations, being no more intoxicating to those familiar with them than common claret. When attention is more generally devoted to wine culture, we shall probably see wine as cheap here as cider, and strychnine whiskey and fighting brandy at a discount. Excessive use of ardent spirits is a great cause of national suffering, anything which will do away with it, or modify it, can hardly fail to be regarded as a blessing.—*Petersburg Express.*

## WOOL FROM GEORGIA—SHEEP HUSBANDRY IN THE SOUTH—THE RANDALL GRASS.

Messrs. Wethered, Brothers, of Baltimore, in a communication addressed to us during the past month, mention that their house has received a consignment of wool, from one of our subscribers at Cartersville, in Georgia. This wool was clipped by the consignor from sheep of his own breeding, and is stated by the Messrs. Wethered to be of good quality, although containing "a few burrs, and not so well washed as it might be." These gentlemen request us to do what we had, previously to the receipt of this letter, designed,—direct attention, particularly, to the great advantages enjoyed by the Southern States, from Georgia to Texas, inclusive, for breeding sheep for wool.—To this end, we had marked for insertion in a previous number of the Farmer, what we have given below, but which the press of other matter has, heretofore, prevented from appearing in our pages; it is from the Patent Office Report for 1857, and is written by George C. Patterson, Esq., of Rogersville, Hawkins County, Tennessee.—What this gentleman says in relation to the value of the "*Randall grass*" as a forage plant, is of interest to all sheep breeders.

"The opinion, which has heretofore generally prevailed, that the northern portions of the United States are better adapted to the purposes of sheep farming than the southern, is gradually being removed by successful experiments, showing not only that this impression is founded in error, but establishing, conclusively, the converse of the proposition; that is, that, in all the essentials for profitable sheep-farming, a large portion of the Southern States possesses advantages incomparably superior to those presented by territory further north.

Beginning at or near a point on the 39th degree of north latitude, 150 miles from the Atlantic coast, and proceeding in a southwestward direction, as far down as the 34th degree, we find an expanse of country embracing about 180,000 square miles, the geological and climatological characteristics of which give to it advantages for sheep husbandry unequalled in any other portion of the United States, of the same extent.

This area of, say, 600 miles in length by 300 in width, includes large portions of Virginia and Tennessee, with considerable parts of Kentucky, North Carolina, Georgia, and Alabama, and a small portion of South Carolina and Mississippi.

The natural configuration of this vast region is not the least of the many desirable advantages it presents. It is situated many hundred feet above tide-water, fanned by the purest atmosphere, and supplied with innumerable salubrious streams.—Having a high and dry range, so conducive to the healthfulness of sheep, and presenting a succession of mountain and valley, it affords the most ample defence against the heat of summer, as well as the bleak winds of winter. Artificial protection, indispensable at the North, yet so apt to induce disease, is thus rendered unnecessary in this more favoured situation.

These valleys, or mountain gorges, are most prolific in a variety of herbage suitable for sheep, and, during winter, they afford a supply of pasturage so abundant, that very little additional food is required. Especially is this the case when a portion of the range is reserved for the winter season, which is the proper course. Hence, the sheep have access to a continuous supply of green food, by which the secretory organs are retained in full action, and an uninterrupted growth of wool is promoted; while cases of constipation, frequently fatal at the North, by reason of sudden changes from green to dry food, are unknown here, there being scarcely a day in the year in which sheep cannot find sufficient green food to keep their digestive organs in healthy condition.

Many of the more elevated portions of this region are so naturally disposed to grass that it is only necessary to clear out the undergrowth—which can be done at an expense of about $2 per acre—when the indigenous grasses, such as timothy, blue-grass, white clover, &c., will immediately spring up and take possession of the land.—There are few ranges of any extent that do not furnish ample quantities of arable land for all the purposes of the sheep-farmer; and they frequently include a fair proportion of excellent meadow land. The soil in this region is generally good, and it is by no means uncommon to find it fertile even to the tops of the mountains; and although there are to be found considerable bodies of thin soil, yet even these are more disposed to the production of grass than lands of a better quality further south.

This thin soil is generally of loose texture, and, therefore, liable to be washed off by rains, unless appropriated to grass. The common sedge is the kind usually found upon it. When this is burned off, in early spring, a luxuriant range is afforded for sheep during the summer. It is not advisable precipitately to substitute the cultivated grasses on this land, since it is not capable of growing them successfully. By burning off the dry and decaying growth of the previous year, when its accumulation interferes with a succeeding growth, and close depasturing for a few years, the sedge will gradually give way to the more valuable grasses. It is well known to all sheep-farmers that, when lands are freely pastured by sheep, their capacity for producing grass is much assisted, as by close grazing the more useless grasses, briars, &c., are subdued, and the desirable descriptions allowed to strengthen their hold, and this, together with the trampling of the land and the droppings of the sheep, induces a more dense sward.

The "Randall Grass"—said to have been discovered in one of the western counties of Virginia—promises to be the most valuable for sheep-grazing in the regions spoken of. From the many experiments resulting from the distribution of the seeds of this grass through much of Virginia and Tennessee, it seems to have met with universal favour. In character and growth, it closely resembles orchard-grass, but is more tenacious of life, flourishing under the most unfavourable treatment, and resisting the intrusion of sedge and other inferior grasses. It has a more profuse foliage than the orchard-grass, and a more slender and soft stem; it will retain its green colour during the severest weather of winter, and exhibit an earlier growth in the spring than other grasses known in this region.

A comparative statement of the expense of maintaining sheep at the North and in this Southern country will exhibit the decided superiority of the latter, and materially assist us in forming correct conclusions. If we examine the various communications on this subject, contained in the Agricultural Reports of the Patent Office, we shall find the average expense of wintering sheep at the North to be about $1 25 per head, while in the region herein treated of it does not exceed 25 cents, or one-fifth the above amount; and in most winters, when the snow does not lie more than a day or two at a time, the cost of wintering is hardly worth computing. This difference in the expense of maintaining a flock is considerably widened when we contrast the value of lands in the respective districts. Those at the North, we may safely place at an average price of $20 per acre, while in the Southern region any quantity of lands suitable for sheep-walks can be purchased at an average of $1, and many large tracts at half that price, or even less; thus affording decided advantages to persons of small capital.

That the climate of the Northern States is more favorable to the growth of fine wool than the region to which I refer, repeated experiments are disproving. Although it is an admitted law of Nature that the covering of an animal will adapt itself in a great degree to the climate in which it abides, yet this does not prove that fine wool cannot be grown in a warm climate any more than that fine furs or fine feathers cannot be found there; for many animals, bearing the finest quality of furs, inhabit the most southern borders of our country, such as the beaver, otter, muskrat, and flying squirrel, and may be classed among the finest fur-producing animals; they are all found in Texas, as well as in the Canadas. The Merino sheep has been bred for ages as far south as the 36th degree of north latitude, in Asia; and we are informed by eminent writers on the subject that there is no perceptible difference in the fineness of their fleece from that of the flocks of Europe; and we have the testimony of the head of the great Lowell Manufacturing Company, who has purchased extensively from all parts of the United States, that "wherever there are good shepherds there is sure to be found good wool." The veritable samples of wool grown by an eminent sheep-farmer of Tennessee, (Mr. Cockrill,) are said to have exceeded in fineness those selected by an agent of our government from the best flocks of Europe; and this gentleman attributes its superior quality to the climate of that region, although it was grown nearly two degrees south of the scope of country of which I am treating, and not in the true grass region. Whether Mr. Cockrill is correct or not in his opinion, the fact is incontrovertible that the climate has worked no deterioration in the quality of the wool in the many years he has given wool-growing his attention. But whatever difference of opinion may exist on this subject, it is established beyond doubt that wool grown in a warm climate has a longer and softer fibre than that produced in the colder countries, although there may be no difference in the fineness of either; and the manufacturer will give a decided preference to the longer and softer staple.

Since the introduction of the Saxon sheep at the North, it is found that they are not capable of resisting the severity of that climate, and the breeding of them is abandoned as unprofitable; but it is reasonable to conclude that this most valuable variety of fine-wooled sheep, before long, will find its fixed place of habitation in the more congenial climate of the South.

There are but few wolves in this region, and as they commit their depredations only at night, all danger from them may be obviated by penning the flocks at such time, when they will also be secure from the attacks of curs, which are unfortunately but too plentiful in this wild and uncultivated region."

## CHINESE SUGAR CANE.

We are indebted to Sydney G. Fisher, Esq., for his very interesting report to the Philadelphia Ag. Society, on the Chinese Sugar Cane, from which we copy the following interesting statement of Mr. Conard:

### REPORT.

Having given some attention to the cultivation of the Chinese sugar cane the two past seasons, I have engaged, to a limited extent, in its manufacture into syrup and sugar. And at the request of my friend, Thomas Ellicott, I have been induced to furnish the results of my observations and experience for the benefit of those whom it may concern. Though I am fully conscious that to many persons in the community the facts here stated are entirely familiar, yet it is to be hoped that the hints contained in the following report may serve to aid public opinion in duly estimating the intrinsic value of the sorghum as an article of culture. And it has been no small part of my design, in the details given, in some measure to assist enterprising farmers in introducing into their communities the cultivation and manufacture on their *own soil*, and with their *own hands*, a commodity of such obvious value—an article of domestic necessity, if I may so speak, which has heretofore drawn largely upon the financial resources of our people.

The largest lot of cane worked up by me this season was raised by Thomas Ellicott, of Avondale, who has taken more interest in this subject, probably, than any other man in Chester county; and was induced to engage in its cultivation by no other motive, as I believe, than that of testing the "Sorghum question," by a fair and open experiment, for the benefit of the community at large.

The ground selected by him was a sod, such as would produce in a good season some forty bushels of Indian corn per acre. It was broken up early in April, and planted without manure of any kind about the first of May, in hills three feet apart each way. The season being unusually wet and cold, much of this seed failed to germinate, leaving many hills entirely vacant, and the remainder so thin that when weeded as judiciously as the case would admit, did not leave an average of over two and a half stalks to the hill, instead of three or four, as was designed. The cultivation was similar in all respects to that used in Indian corn. The cutting commenced on the 4th of October, when the seeds appeared generally ripe, and it was nearly all worked up by the 20th of the same month. This lot, containing four acres and ten perches, yielded eight hundred and eighty-three gallons of syrup, or a fraction over two hundred and seventeen gallons to the acre; and it

is but due to remark that some twenty-five gallons per acre were lost by a misconstruction of orders in cutting the cane about one joint higher from the ground on an average throughout than economy would require; so that the positive yield of this piece of ground, under all the unfavourable circumstances of its culture, *should* have been two hundred and forty-two gallons to the acre.—And I may observe here that, having worked up small lots of cane for over thirty of my neighbours, this fall, I measured *carefully* several pieces of ground whose produce had passed through my hands, for the purpose of determining more certainly what an acre of ground under ordinary circumstances might be expected to produce.—The result of this examination gives an average of two hundred and forty-five gallons. And it is due to state in this connection that, on a careful examination of the importance of our mill, we have to admit that at least ten per cent. of the saccharine remained in the stalk, which if our works had been sufficiently strong, should have been extracted. This important fact being taken into account, will swell the average produce per acre to two hundred and sixty-nine and a half gallons. And from what I have observed of the culture and management of the several lots of cane embraced in the estimate alluded to above, I cannot but believe this result to be *entirely inside* of what may be done on good land, in an ordinarily favourable season.

A few remarks in reference to the seed, the culture, time of cutting, keeping it after being cut, method and cost of manufacturing syrup are added.

SEED.—Cultivators of the sorghum will need to be scrupulously careful lest the seed they plant should be hybridized with broom corn or other plants of the same genus, and to obtain that which has been thoroughly ripened. Broom corn growing some hundreds of yards distant, has been known so to affect the seed as to render the succeeding crop almost worthless.

CULTURE.—It is of importance to the success of its cultivation that the ground selected should be so elevated as to be clear of liability to excessive moisture; for although, when well matured, the sorghum will bear more frost than Indian corn, yet it is liable to material injury from early frosts in this latitude, when planted in cold, clay soils. The earth should be reduced to a very fine tilth before the seeds are committed to its keeping.—As a method of planting, I would suggest that the plan adopted by T. E., on the four acre lot, described above, is perhaps as economical as almost any other; though the drill may be used to great advantage on clean ground, if it can be made to drop the quantity desired. During the subsequent cultivation, I think it ought to be reduced to about one stalk to three superficial feet, removing such suckers and inferior stalks as are likely to be backward in ripening.

CUTTING.—As to the time of cutting it may be regarded as sufficiently ripe for syrup, when the seeds become generally of a dark brown color—but will continue to improve in *quality*, if left to stand till the temperature falls to 32 degs. F., or even lower. But "delay is dangerous," on account of the uncertainty of the season, and the time required to work up any considerable quantity of cane. It should be cut obliquely, just above the crown roots, and one or two joints lopped off at top. I think the blades are stripped off more freely after cutting than while standing, and I have no doubt it "pays" to tie up the cane in small bundles, before attempting to load it, in order to facilitate handling.

KEEPING CANE.—The cane, if uninjured by severe frosts before cutting, may be kept good several weeks, if protected from excessive wet and hard freezing. This may be done either by housing or by placing in winrows, on rails or boards, and covering with straw.

FODDER, SEED AND CRUSHED CANE.—The tops, after the seeds have been knocked off with the thrashing machine, together with the blades, when properly cured, make the best of provender for all kinds of stock that eat hay. The seed, of which thirty to forty bushels to the acre, weighing some forty pounds per bushel, may be expected as a fair crop, is much like the broom corn, and when ground makes excellent feed.—The pressed cane or bagasse (if the mill does its duty), is of no value for fodder, but may make some manure when rotted, or might be useful as fuel for evaporating the juice. A *small amount* of vinegar may be got out of it, and I should judge, from its fibrous texture, that afterwards it would make ropes, or excellent paper manufacture.—Our crusher is a light one horse, two roller, cast iron mill, capable of expressing about forty gallons of juice per hour—cost fifty dollars. The boilers have wooden sides and sheet iron bottoms, and are set on brick work, so the fire reaches the bottom, but cannot approach the sides.

There are three of them; one of them holding eighty-eight gallons we use as a clarifier, and is set at a height which admits the juice to be run into it from the vessel under the mill, and higher by the depth of itself than the other two; so that when ready the clarified juice is run into either of the others. These, each holding seventy-two gallons, are used for evaporating and finishing.—For neutralizing the acid and clarifying I have used super carbonate of soda, which was applied after the juice had been brought gently to the boiling point and the first scum removed, and was continued in small quantities while much green matter was evolved; still removing the scum after each application of the soda, when sufficiently coagulated to part from the fluid. The evaporation was continued as *rapidly* as possible after coming into the lower boilers, until the mass had reached a density of some 25 degs., when it became necessary to slacken the fire, and proceed with much care, to avoid running it over or scorching the syrup. The operator will very soon be able to determine when the batch is sufficiently done, by the appearance of the boiling mass rising in somewhat larger and regular inequalities of surface, and receding with a little snap on the escape of the steam. Yet I have found it best occasionally to test the strength of the syrup. By the use of Beanme's saccharometer and a thermometer adapted to the purpose.—The standard I assumed was about 36 degs. to 37 degs. B. at 60 F. This *may* have been beyond what was really necessary, but, in a case of this kind especially, it was best to err on the safe side, if err we must. When the batch was sufficiently done the fire was immediately checked till the charge was removed into the cooler, and a fresh supply introduced from the clarifying boiler.—These three boilers, when well managed, were

fully equal to the capacity of the mill, and have yielded over eighty gallons of syrup per day, though I regard sixty-three gallons, with these fixtures, a reasonable day's work. In the consumption of fuel we must have been prodigal, using about three-fourths of a cord for every sixty-three gallons. There were some obvious deficiencies in the arrangement of our furnaces to account for this, which, if removed, would probably reduce the consumption to two-thirds of this quantity.

Cost of Manufacture.—With this imperfect apparatus the *actual cost* of making syrup after the cane was prepared and brought to the mill, did not vary much from eleven cents per gallon; and I am inclined to believe, from all that I have been able to learn, that syrup may be made for ten to twelve cents, and *possibly* with profit at the former rate, if done on a sufficiently large scale, and with such appliances as may be obtained.

Our experiments for obtaining sugar are not yet fully closed for the season; for, although winter has come, I still have a lot of cane in as good condition as when cut, near two months ago.—We have succeeded in our experiments in making sugar, and in quantity and quality it seems quite encouraging, though in color it is not satisfactory, having in its *complexion* that *distinguishing characteristic* which, in spite of its *positive worth*, fixes on it the degradation of being "*low priced*." Although in the trials I have made I have had the benefit of the report of J. S. Lovering, of 1857, and am indebted to his kindness for more minute instructions, personally rendered, I have as yet been unable to produce a crystalization sufficiently perfect to part freely with the residue; and I think it is in consequence of this, and the ill adaptation of our boilers in part, that our productions has so far been of a dark color. But I feel entire confidence that we *can* yet make sugar from the sorghum, that will not only be *cheap* enough, but of quality *good* enough for all ordinary purposes.

I must, therefore, say, in relation to the practicability of raising and manufacturing our own sugar and molasses in this latitude, that there is no longer left any room to doubt. The experiments of the past season go to show conclusively that the farmers of the middle States can successfully compete with their agricultural brethren of the South in the production of syrup equal in weight and superior in flavor to the very best molasses sent us from Louisiana, and in no respect inferior to the finest "golden syrup" of Boston or Philadelphia; and they also show that, while the interest of the farmer will be greatly promoted by giving the sorghum a place in his system of culture, an equal benefit will arise to the community at large from the diminished rates at which these necessaries and luxuries of life may be furnished, while, as a natural result, some four or five millions of dollars, now annually sent out of the State of Pennsylvania alone, may be retained within the channels of our own trade. I will here close this imperfect sketch by saying that, in the statements and suggestions made in this paper, I have been actuated by a desire not to mislead in reference to any feature of the subject; but, if possible, to aid in drawing the attention of the community to the value of the Chinese sugar cane, and at the same time to yield for the use of others what little my own experience has induced. Milton Conard,

West Grove P. O., Chester Co. Pa., Dec. 4, 1858.

## SUBSOIL PLOUGHING.

Before commencing spring work it will be well to consider which lands should, and which should not, be subsoiled.

From the days of Jethro Tull until within the last twenty-five or thirty years, the farmers of England were content, in common with those of other countries, to stir the immediate surface of the soil, and were not aware that a greater depth of disturbance would produce a larger and better result. Indeed, it was generally believed that the whole matter which went to fertilize plants belonged to the immediate surface, or that portion known as *loam*—a name given, until very recently, to the disturbed portion only—which, by the combined influences of sun, air, and decay of vegetation, changes its colour. The fact that the components of the soil beneath these points were all to be found as part of the integrants of plants was scarcely known, and still less so that they could not be absorbed by them, and thus go to make up their structure, until acted on by a series of influences caused by atmospheric contact and the presence of humidity; not the result of stagnant water. Liebig first exposed the true value of the inorganic substances of the soil, or those parts which were not the immediate result of plant decay; and farmers slowly yielded their long-cherished belief that the black portions of the soil alone could make plants. These new doctrines gave rise to the use of a subsoil plough, which, without elevating the subsoil to the surface, disturbed it in places, and permitted a free circulation of atmosphere between its particles. The deep cuts made by the plough also acted in degree as under-drains, and permitted, under some special conditions of surface—such as the slope of hills, etc.—redundant water to pass away.—Air necessarily entered, and chemical changes occurred; the surface of the particles of the subsoil were soon conditioned so as to sustain roots, and they passed into it to greater depth than had been before known. These, in turn, absorbed from the subsoil larger quantities of inorganic matter, rendered soluble by chemical changes consequent upon moisture and air. The constituents were taken into the plants above, and portions not marketable as crops, decayed in the upper soil, adding to the greasy, unctuous, organic matter new portions of inorganic food for future crops. Plants had longer roots as well as greater number of fibres, and larger crops was the consequence. The decay of these roots in the soil left tubes to great depths; the atmosphere could come in laden with gases, resulting from vegetable decomposition required by plants; rains and dews, which wash the nitrogenous exhalations of all organic nature from the atmosphere, descended into the subsoils, which gradually changed color so as to make deep loamy soils in localities where before only sparse, shallow-rooted crops could be grown. All this was heard of by the American farmer long before he was awakened to action; and even now, when every truly practical farmer owns a subsoil plough, he can tell you of some neighbour who cautioned him against its use, and who insisted that the deep disturbance of his soil would let all the manures filter downward; forgetting that, if that were true, every well would be the receptacle of the results of decay, every spring would be a cesspool, and every rivulet but an organic charnel-house. Nature, in the wisdom of her laws, has rendered the carbon and alumina of

the soil, after proper exposure to atmospheric influences, capable of receiving and retaining all the results of decay; and the value of a farm must depend upon the depth to which its surface by disturbance is rendered capable of performing this peculiar function.

Thoroughly subsoil-ploughed lands soon become capable of deeper surface ploughing, without injuring the crops; and if under-drained, which is but the perfection of the very principles presented in the theory of subsoil ploughing, then all the mechanical conditions necessary for maximum results are secured. And when these exist, the chemical conditions follow as a natural consequence.

Among the advantages arising from subsoil ploughing may be enumerated the following: The value of land for agricultural purposes is doubled; the relative amount of manure required, as compared with the amount of produce, is lessened; the farm is essentially protected from the effects of drought; all future labor of the farm is materially lessened, and thus the expenses of teams, the wear and tear of agricultural implements, are all decreased, while the quality of crops, and their quantity, are so augmented that, per bushel or per pound, they take a preference in every market.

It has been said, and probably with truth, that if the subsoil ploughs and under-drains of England had not been introduced up to this time, the area of land under cultivation could not have sustained her population. Fifteen years ago there was not in the State of —— as many subsoil ploughs as there are now founderies for casting them; and when a friend of the writer first introduced the subsoil plough he had not a neighbor who had seen one. We suppose this may be said of some farmer in every county in the United States within the last twenty-five years.—*Harper's Weekly.*

## THE TOBACCO TRADE OF THE UNITED STATES.

*Mr. Bowie's Resolutions.*—The following resolutions, offered by the Hon. Thomas F. Bowie, of Maryland, having passed both Houses of Congress some days ago, received the signature of the President on the 14th instant:

*Resolved by the Senate and House of Representatives of the United States of America, in Congress assembled,* That the trade in tobacco with Great Britain, France, Spain, Portugal, Austria, Brazil, and other foreign nations, is clogged with restrictions and limitations wholly inconsistent with that fair and reciprocal condition of commerce which ought to exist between the United States and those nations respectively, and is therefore unsatisfactory to the States of Virginia, Kentucky, Maryland, North Carolina, Missouri, Tennessee Ohio, Connecticut, and other tobacco growing States, in which that article is an important, if not the chief, staple of agricultaral productions.

2d. *Resolved,* That it is the duty of the federal government to use its utmost power, by negotiations or other constitutional means, to obtain a modification or reduction on the part of said foreign nations of the duties and restrictions imposed by them on the importation of American tobacco, and to this end to employ all the diplomatic and commercial powers which the constitution has confided to it in producing a more just and equal reciprocity in a trade so deeply involving the value of that portion of the agricultural labour of the country, in which at least one-fourth of the confederacy is concerned.

3d. *Resolved,* That the treaties of the United States with China and Japan present a fair and fitting occasion for the enlargement and extension of the tobacco trade of the United States, and it is the duty of the government of the United States to use all their exertions, within the limits of constitutional power, to foster and encourage the introduction of American tobacco as an article of use among the people of those nations.

4th. *Resolved,* That diplomatic negotiations with England, France, Spain, and Austria, as well as with China and Japan, ought to be commenced as soon as practicable by the government of the United States, with the view of obtaining a modification of the existing systems of revenue and taxation of those nations in respect to American tobacco, and for this purpose instructions ought to be given to our foreign ministers, consuls, and commercial agents in those nations by the Executive of the United States to use all their constitutional and legitimate functions in producing a desirable a result.

## SEED WHEAT NORTH OR SOUTH OF US?

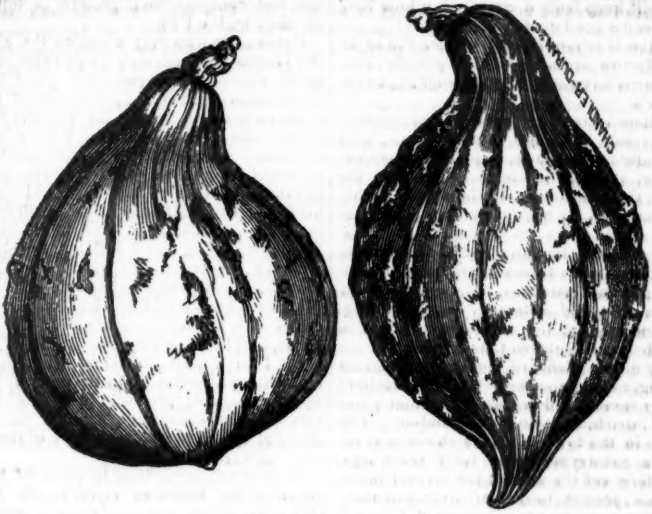
We shall be very glad to receive the testimony of those whose experience will warrant it, on the question of getting seed wheat North or South of the location where it is to be sowed, with a view to secure earlier ripening. Some of our friends, and among them Mr. Hewlett, speak decidedly in favor of Northern seed; on the contrary, the following is taken from the letter of an intelligent correspondent near Louisville, Kentucky:

"Shall we get Seed Wheat North or South of us?" I say from the South. Every farmer in this part of the State who has tried it, (and there are very few who have not) will tell you the same thing. It has been tested here for ten years, and we never get our seed North of us.

☞We call the attention of country residents to the advertisement of the Hartford Fire Insurance Company, which appears in this issue. The venerable age of this widely known Company, and the large amount of assets they have accumulated, are the best evidence of its solid character and worth. Their agent in Baltimore, Mr. Gerard B. Coale, has been identified with the business of Fire Insurance in this State for nearly twenty years. The long experience of this Company, extending over the face of the whole Union, enables it properly to estimate the hazard of country risks, and induces them to offer protection on terms so low that it is a folly for farmers to neglect to avail themselves of it.

☞To Sydney G. Fisher, Esq., of Philadelphia, Cor. Sec., we are indebted for a copy of an excellent paper on the Cultivation and value of the Chinese Sugar Cane, read before the Philadelphia Society for promoting Agriculture, at the stated meeting held January 5th, 1859.

## TWO NEW SQUASHES—HUBBARD (engraved below) AND HONOLULU.



We have, during the past winter, had the pleasure of testing the qualities of two varieties of Squash, recently introduced to public attention.—An engraving of one of these, the Hubbard Squash, (for a loan of the "cut" we are indebted to the *Boston Cultivator*) precedes this article. We give to our readers the description below of this excellent vegetable, as contributed to Hovey's Magazine of Horticulture, for February, 1859, by James J. H. Gregory, of Marblehead, Mass. The Hubbard we think decidedly the best variety of squash we have ever tasted. It makes a most delicious pie, is very fine in grain, and remarkably sweet, and high flavoured. The seed are snow white.

The external appearance of this vegetable is not very inviting. It is of about the size of a musk melon, shaped as in the engraving, and excessively hard —so hard, that the friend to whom we are indebted for our knowledge of its excellence, could cut one only by the use of a hatchet.

For our knowledge of the *Honolulu* squash, we are under obligations to Wm. Richardson, Esq., of Frederick Co., Maryland, from whom we received a fine specimen, during the past winter—the same seen by us at the Ag. Fair, at Frederick, last autumn. This vegetable looks, externally, like a large watermelon of the "Mountain Sprout" variety. It is of a very dark green. Internally, the flesh is white and solid. The seeds are buried deep in the flesh, and, unlike those of the watermelon, are not found contiguous to each other, are comparatively few in number, and are of a light, greyish green, and shaped like those of the watermelon, but not so flat. The flesh is not high flavoured, and, we thought, rather insipid, though of fine grain. We think the specimen received by us may have been kept too long. We tried it both as a vegetable and for desert. It was brought, originally, from the Sandwich Islands to California, and thence to the Atlantic States. Mr. Gregory describes the Hubbard Squash as follows:

The two engravings (figs. 2, 3) give the forms of this celebrated squash which are esteemed most desirable. With the single error of the absence of a concave ring where the stem unites with the squash, the engravings convey to the eye all that is possible without the aid of colours. The colour of one variety of this squash is olive green, usually accompanied with lines of dirty white, beginning at the calyx and extending in the sutures about two-thirds the length of the squash; that portion of the surface exposed to the direct action of the sun's rays is often of a brownish hue. The other variety is of a light clay blue color. Each of the varieties have usually a dense, hard shell, somewhat thicker than a cent, and often abounding with rough, knotty protuberances, which remind one of the old-fashioned "nigger pumpkin." The flesh is of a deep orange color, usually thicker than the Marrow, and remarkably fine grained and compact in its structure.

In quality, this squash is generally conceded, so far as opinions of its merits have been expressed, to rank at the head of the numerous varieties of the squash family cultivated in the United States. Its characteristics are, an exceeding dryness of the grain from the time of harvesting until the middle or close of November, after which it becomes less dry, very sweet and rich flavoured, tasting sometimes like a sweet potato, at others like a boiled chestnut.

In keeping properties, it excels the Marrow and its varieties, keeping its quality unimpaired about three months later than these, until the middle or

latter part of spring. The true measure of the keeping properties of any variety of squash is, not how long it will keep from decaying, but how long it will preserve its good qualities?

In weight, the Hubbard averages about the same as the pure Marrow, from six to eight pounds each, though specimens have been raised weighing twenty-three pounds.

In yield, where it has been tested by disinterested parties side by side with the pure Marrow, on a strong soil, under circumstances equally favourable, the difference, if any, has been in favor of the Hubbard. In these instances, the land was highly and equally manured for both varieties. The average yield of nearly six acres during the past season, raised in different localities, on a Greenstone soil, was very nearly five tons of marketable squashes to the acre; in two instances, not included in the above average, the yield, with very high manuring, was, in the one case, at the rate of seven, and in the other at the rate of eleven tons to the acre.

The history of the Hubbard squash is anomalous and interesting, as showing how long an excellent vegetable may remain isolated unless special pains are taken to introdude it to public notice. The first specimen in the town of Marblehead was introduced by a countryman over forty years ago, who, having followed the market for several years, brought it as a present to one of his customers, and, after strong persuasion, assuring her it was not a poisonous gourd, induced her to prepare it for the table, adding that, at the worst, she could give it to the hogs. The seeds of this squash were presented to a friend of the family, a widow lady, a great enthusiast in gardening, to whom its cultivation appears to have been wholly confined for upwards of twenty years.

About fifteen years ago it was brought to our notice by our good old washerwoman, Mrs. Hubbard, after whom we finally named it,—for, up to within four years, this squash cannot be said to have had a name. Three years ago, a correspondent of the New England Farmer inquired, through the columns of that paper, for some good variety of winter squash; it occurred to me that a debt was due from us to the public in the general dissemination of so excellent a vegetable, and under this impression it was then introduced to public notice.

One of the most promising characteristics of the Hubbard squash is its strong individuality. With whatever variety it may chance to be crossed, it will still retain many of its excellent characteristics; and a careful, isolated cultivation for three successive years will near entirely obliterate all crosses, however various and prominent these may have been. This squash is now fully equal in quality to what it was when first cultivated, over forty years since.

CULTIVATION.—Select a soil and exposure suitable for squashes,—a soil rich, not over moist and rather strong, with a slope towards the sun, if convenient. Manure as liberally as for a good crop of Marrow squashes, applying from six to ten cords of rich compost to the acre, one half of which should be spread abroad and ploughed in, particularly if the land is not in very good heart. Plant after danger from late frosts and cold rains is past, in the latitude of Massachusetts not earlier than the twentieth of May. As the vine makes a growth rather more vigorous than the Marrow, the hills should be as many as eight feet apart, with not more than three vigorous vines in each. The vines will set fruit abundantly throughout the season, and continue their growth in full vigor until checked by the frost.

Cultivators who may enter on the cultivation of the Hubbard squash on a large scale will be likely to be deceived as regards the yield, if they form their estimate on the appearance of the growing crop, rather than weight for the certain testimony of the scale. In illustration, I have several cases in mind. One worthy farmer came to me in the course of the past summer, after the crop was well advanced, and stated that he should not have from his field (scant half an acre) over 600 lbs. of squashes. The result was, he brought me over 4300 lbs., besides reserving about 800 lbs. for his own use.—Another counted his experiment a failure, saying that if he had planted the same extent of land to Marrows, he would have had five or six tons; the result was, he delivered to me 14,136 lbs. of Hubbards, besides reserving about 1000 lbs. for his own use. I might present several additional instances, but these will suffice. As the color of the Hubbard squash is almost precisely the same as that of the vine, presenting no such striking contrast as that afforded by the Marrow, the eye of the inexperienced cultivator is deceived.

With the remark, that in point of hardiness we consider the Hubbard equal to the Marrow, and that it has fewer and smaller seeds with a much less proportion of entrails, I will close this article, which I fear, Mr. Editor, has already trespassed too largely on your valuable pages.

## LAND SALES.

### MARYLAND.

*Cecil Co.*—Messrs. Earle & Creswell, Trustees, sold 37 a. of unimproved land, part of the estate of Joseph Scarborough, dec'd, for $352; Wm. J. Marchbank, purchaser. Mr. John Mauldin, of North East, has bought from L. H. Evans, executor, the farm of the late James Lindsey, near Perryville, 200 a., for $10,000, at which it is considered to be a cheap property. ☞200 a. near Port Deposit, owned by the late Doctor J. S. Boies, to Mrs. Caroline Whitelock, for $6,000. *Dorchester Co.*—Wm. W. Hearn, Esq., his farm near Jacktown, 200 a. to Abraham Lee, of Talbot Co., for $3,100. *Frederick Co.*—In the vicinity of Unionville, 134 a. for $16,50 per a., to C. A. Lawrence, Esq., also 62 a. 1 r. and 16 p., for $1875, to Mrs. P. Simmons. By Executors of Dr. A. Ritchie, dec'd, a tract near Frederick, known as the Sand Pits, 22 a., at $69 pr. a., to Geo. Leather, Esq. By Dr. O. H. Owings, Trustee, in the vicinity of Unionville, 134 a. at $16.50 per a. to Chas. A. Lawrence, Esq.; also 62 a. 1 r. and 19 p., to Mrs. P. Sims, for $18.75. By the Trustees, the farm of the late Stephen Ramsburg, 208 a., at $70.25 per a., to Jeremiah Cramer. *Prince George Co.*—Richard W. W. Bowie, Esq., 220 a. of unimproved land in Queen Anne district, to Grafton H. Isaac, for $6,600. Considered cheap land. S. H. Berry, Esq., as Trustee, at public sale, the land belonging to the estate of the late Mercy Owens, in Vansville district. One tract cont. 71 a., to Basil Owens, of Howard Co., for $10.75 per a. The other 70 a., to Samuel Owens, of this Co., for $12 per a. The land was unimproved. *Washington Co.*—Mr. Ja-

cob R. Martin, his farm, 118 a., on Beaver Creek, to Mr. John W. Wishard, for $90 per a. William T. Hamilton, Trustee for heirs of Jacob Hutzel, dec'd., the following, situated about one mile south of the Mountain House: Tract No. 1, 105 a., improved with a two story log house, log barn, and other out buildings, for $20 per a., to Joseph O'Neal. Tract No. 2, 34½ a., about one-half of which is heavily set in Timber, for $22.62½ per a., to Dan'l. Smith.

## VIRGINIA.

*Albemarle Co.*—The Dawson farm, 538½ a., belonging to the University of Virginia, at public auction, to Mr. S. W. Ficklin, for $36 per a. This farm was devised to the University by the late Martin Dawson, of that Co., and sold by an act of the Legislature. *Alexandria Co.*—The Thompson land, 234½ a., by Jas. V. Brooke and John P. Phillips, Esq's., at $40 per a., to Mr. Brent Kincheloe. It is near the Plains Station, and is regarded as an excellent sale—not, however, beyond, if indeed, up to the average price of land in this Co. *Augusta Co.*—The farm of N. C. Kinney, Esq., on the McAdamized road, about three miles from Staunton, 346 a., at public sale, to Mr. J. Davis Craig, at $46 an a. *Culpeper Co.*—Henry Shackleford, Esq., one of his farms near Brandy Station, about 500 a., to Mr. George M. Wood, at $20 per a. No improvements. *Chesterfield Co.*—In pursuance of a decree of the county court, in the case of Shell and wife, *vs.* Burton's heirs, A. E. Cogbill, Commissioner, 28½ a., within three miles of Petersburg, for $17 per a. The land is unimproved, and the sale is considered a good one. Mr. Frederick Taylor was the purchaser. *Fairfax Co.*—Mr. Wm. P. Quisenbery his farm, Clifton, three miles below Alexandria, 240 a., at $40 per a. Mr. Gillingham purchaser. The Gunston tract, about 1,000 a., below Alexandria, has been sold to some gentlemen from the North, for $20,800. *Green Co.*—The land of David W. Davis, at $25 per a., on terms equivalent to cash. The farm contains 678 a.—*Marion Co.*—Mr. Norval Barns, 114 a. to Wm. Meredith, for $3,500, or a fraction over $23 per a. Mr. Barns subsequently purchased fifty a. from Rev. Moses Tichenell at $72 per a. or $3600 for the tract. Mr. Tichenell has also sold 30 a. to Mr. James Burns, at $75 per a. or $2250 for the tract. *Norfolk Co.*—66 a. in St. Bride's Parish, by Henry H. Halstead, Commissioner, for $1600. A farm of 80 a. known as the White House, near Norfolk, for $1,000. *Rockingham Co.*—Capt. J N. Hill, of Harrisonburg, his land, near that town, and known as the Irwin tract, to Reuben Walton, for $1,300.

## DELAWARE.

A farm 171 a., about 3 miles west of Dover, to T. S. Merritt, Esq., of New Castle, for $2,950.—Joseph Higgins, of Colonel Jesse Sharpe, 40 a. of land in White Clay, Creek Hundred, without buildings, for $4,000. Benjamin Armstrong, his farm, 78 a. in Mill Creek Hundred. to Josiah Hewlett, for $80 per a. Mr. A. intends removing to Virginia, where he has purchased some 440 a. of land. The Kielkopf property in Appoquinimink Hundred, 123 a. at public sale, by Sheriff Cannon, to Z. McD. Roberts, for $1450.

## PENNSYLVANIA.

*Bucks Co.*—Jesse H. Atkinson, his farm in Buckingham, 76 a. to B. J. Smith and Lewis Worstall, for $6000. Wm. Worthington, his farm in Solebury, near Centre Hill, about 60 a., to Samuel Cooper, of Upper Makefield, for $4,300. Zachariah Leidy, the farm of Henry S. Harmer, in Hilltown, 37 a. for $3000. John Johnson, of Upper Makefield, his farm of 104 a., to Cornelius Slack, of Dolington, for $8,500. W. R. Neeld, his farm in Lower Makefield, about 66 a., to Seneca Beans, for $100 per a. Marshall Taylor, his farm in Lower Makefield, to Wm. R. Neeld, about 100 a., for $95 per a. The farm of Robert Smith, dec'd, in Buckingham, about 142 a., by the executors, to Jacob Eastburn, for $85 per a. Samuel Story, his small farm of 50 a., on the East side of the Newton Turnpike, in Middletown, to a person in Philadelphia, for $115 per a. The farm of Joseph Morris, dec'd, in Wrightstown, cultivating about 30 a., with buildings, by the executors, to Benj. Lacey, Amos Chapman and others, at $100.25 per a. Twenty nine a. of unimproved land was sold at $85 per a., to Joseph P. Carver, John Cooper and others. The well known residence of Pierce Butler, on the old York Road, near Philadelphia, has been sold to a company of gentlemen, for improvement purposes, for $600 per a. or $36,000. The plot contains 60 a. Lewis Dungan, has sold 75 a. in Hilltown, to a Philadelphian, for $150 per a. The farm recently owned by T. D. Rodrock, in Warrington, 00 a., has been sold by S. B. Rogers, to a Mr. Pitfield, of Philadelphia, for $12,000. The Duffield Ridge, 24 a. of his farm in Northampton, without buildings, to Isaiah W. Gearhart, for $90 per a. *Chester Co.*—Abner Baldwin, of Valley, his farm, adjoining the Chester County Poor House, in Newlin, to Gregg Clayton, of West Bradford—100 a. at $100 per a. Levi Walleigh, of East Nantmeal, his farm, 52 a., for $4500 to Joseph Trainer of Philadelphia. The farm of Reese Rambo, in Easttown—94 a., at $9,511, to James M. Hall, of Philadelphia Co. The farm of Abraham Rambo, East Goshen, about 45 a., to Morgan Massey, of Uwchlan, for $110 per a. Lewis Gause, 164 a., in Kennet, to Jonathan Gause, of East Bradford, for $46,000. Thomas Meredith, of West Vincent, his farm of 34 a., for $2900, to David Paul, of the some. Susan Carpenter's farm, late property of John Carpenter, Jr., dec'd, in West Goshen, 45 a., to Col. Geo. A. McCall, of Philadelphia, $10,000. Samuel Hufty, of East Nantmeal, 20 a. of land, without buildings, for $85 per a., to Jesse E. Phillips, of same. Hon. David Potts, of Warwick tw'p, 10 a. of stump land, $30 per a., to Isaac Robinson, of East Nantmeal.—*Montgomery Co.*—The farm of William Logan, of Lower Providence tw'p, 107 a., to Edward Pugh, of Chester Co , for $7,300. The farm of J. S. Bradly, in Mooreland, to Benjamin Worthington, of same tw'p., for $97.50 per a. The farm of Harrison Yerkes, in Mooreland, to John Slack, of same tw'p, for about $125 per a.

## GEORGIA.

*Dougherty Co.*—In compliance with the will of the late P. E. Tarver, the valuable settlements of land known as the "Home Place," the "Porter Place," and the "Mill Place," were sold at public sale. The terms of sale were, delivery of possession of the premises on the 1st day of January next, with payments of four annual installments with interest on the three last from 1st Jan., 1860. The "Home Place," 2,748 a., by Col. T. Clanton, of Augusta, at $24.50 per a. The "Porter Place," 1,217 a., by Col. Clanton, at $23 per a. The

"Mill Place," 1,000 a., entirely unimproved, by F. K. Wright, Esq., at $13.40 per a. Total number of a. sold 4,965 at $108,717, being an average of over $21 per a

KENTUCKY.

*Bourbon Co.*—D. Lang's farm, 270 a., near Clintonsville, to I. G. Grimes, at $75 per a. F. Colcord, 400 a. on Cane Ridge for $70 per a. Maj. T. H. Shelby and Judge W. B. Kinkead purchased of Mr. Charles S. Brent, of Bourbon, 307 a. of land, with a house, about 8 miles from Lexington, at $74.10 per a. It was part of the Richland farm, of the late Gen. James Shelby. The original tract of 3200 a. was purchased by old Gov. Shelby *with a rifle*, not an acre of which could now be had for less than $75 per a., or even for that. *Fayette Co.*—Highly improved farm, "Leary Place," 1400 a., near Lexington, for $32,000, or $133 33 per a., by Messrs. Morehead and Sayre, to Messrs. Wasson and Allen. Farm, 200 a., by E. R. Smith, at $80 per a., to John Bedford, of Bourbon. *Clark Co.*—Farm, 30 a., estate of S. True, at auction, to J. H. Shaffer, of Fayette Co., for $156.75 per a. *Madison Co.*—Jos. P. Chenault, Esq., his farm on the Boonsboro Turnpike, near Richmond, 400 a., for $26,000, to W. Miller, Jr., and W. O. Chenault.—*Scott Co.*—M. L. Hall, 120 a., near Oxford, for $60 per a.

## MARYLAND FARMING.

Those of our readers who are not specially interested in agricultural pursuits, would be surprised at the very moderate results of Maryland farming, especially in reference to cereals.—There are not wanting very authentic accounts of large yields of wheat, for example, on English farms, where the average product per acre so far as we know, far exceeds the yield on the best wheat lands in this country. The Mark Lane Express contained, some years ago, a very accurate statement of the product of a large field in which the greatest care was observed in obtaining the precise dimensions of the field and the exact weight of the crop. The result was considerably over sixty bushels per acre. This statement was attested by several of the first agriculturists in Great Britain. The American papers that are devoted to the discussion of subjects relating solely to farming interests, never confess any inferiority in soil or climate in this country; on the contrary, it is perfectly certain that the wheat crop in England is considered the most precarious, on account of the danger of damage in harvest time, from the humidity of the climate. But our kinsmen on the other side manage to raise crops of this cereal far exceeding any that we produce in our most favoured localities. It is true that Maryland cannot be classed with those States that are called "wheat growing" *par excellence*, and her annual exhibit of the other productions of her rural districts compare very favorably with those of other States—but an average of eight to twelve bushels of wheat per acre, is certainly far below her capacity. And so in regard to Indian corn, to the growth of which our soil and climate are perhaps peculiarly adapted; the average annual product of Maryland farms is shamefully small.—The Patent Office report of 1853-4, contained an account of the yield of corn on a Kentucky farm, in which it was stated that for two consecutive years the same field produced one hundred and ninety five bushels of shelled corn to the acre.—Such a statement seems hardly credible in this longitude, where one-half this amount is considered an enormous yield, and where the average annual product is probably less than one-tenth of it. It may be that the figures in the agricultural portion of the census reports of 1850 are not perfectly reliable, but it is certain that Maryland has no reason to be particularly vain of the position assigned to her there.

There is something doleful about the tirade found in the agricultural journals against bad and thriftless farming. It can hardly be possible that so much complaint should be made if there were not some real cause for it. The example of those that are successful farmers would not be so often quoted if there were not numbers of soil-tillers deserving the title of soil-killers, which they constantly have applied to them. A man will plough ten acres of land and plant it in maize—and toilsomely cultivate it during the sultry months of June and July—and his crop will amount to one hundred and fifty bushels, while his neighbour will produce the same quantity on a little patch of an acre and a half, with less than a fourth of the labour and expense. The *larger* farmer adorns his field with a bundle of old cloths on a pole—intended for a scare-crow—whereas the crop itself would frighten away any crow that was not in a state of starvation.

The constantly reiterated complaint seems to be, that too much is undertaken upon too small a capital; or that too large a surface is cultivated for the amount of money invested in fertilizers.—For example: It costs perhaps twenty dollars to plough a ten acre field, and if Indian Corn is cultivated the cost of subsequent cultivation is probably as much more. If the very inadequate quantity of manure which is usually applied was confined to one acre instead of ten, it is asserted that the product would be as great in the small as in the large field, at just one-tenth of the expense. In addition to this seemingly plausible theory, there is the known fact of larger necessary outlay for fences and larger estimates for interest upon the cost of the land. Four hundred pounds of Peruvian Guano, sown broadcast over a ten acre field, would not produce any perceptible effect—whereas the same quantity sown over a single acre would produce a maximum crop.

The thorough discussion of this interesting subject would lead us far beyond any reasonable limits. All that we profess to do, is to hint at some prominent abuses in Agricultural affairs, and to notice merely the more apparent evils resulting from mismanagement in this very important branch of industry; and among these, worn out lands—worn out, too, while they are yielding very imperfect returns for the labour and expense wasted upon them, until, at last, they will hardly produce the "poverty grass" that disgraces so many farms which are susceptible of the highest cultivation. And the poor farm makes the owner poorer, until he becomes spiritless and hopeless, and loses what little energy he ever had. Surrounded with all those elevating and inspiring objects, with which the God of Nature so lavishly adorns the country, he is as a blind man in the midst of the loveliest scenery, or as a deaf man totally unconscious of the most enchanting melody floating around him. How much of the evil is remediless we do not pretend to say, but surely it is not altogether impossible for Maryland to take a more respected place in the Agricultural table, which will form so large and so interesting a portion of the Census of 1860.—*Balt. Daily American.*

☞Our Advertising Sheet.—Our advertising sheet will not, of course, escape the notice of our readers. We happen to know it to be a matter of great interest to a large portion of them, within reach of the markets whence the advertisers hail. It is the best evidence in the world of the value of the custom, which our sheet introduces to business men, that from eight pages, which was its extent some three to four years ago, it now frequently reaches, as this month, fifty pages, and on one occasion sixty pages of advertising matter. We have this month, notwithstanding the large amount of advertising, four pages extra of reading matter.

☞To Correspondents.—Much matter that had been prepared and which we would have been glad should have appeared in our present issue, has been unavoidably deferred until our April number, by the necessity of going to press earlier this month than usual. The communication from our correspondent, at Columbus, Ohio, in relation to the article in the "*Farmer*," for last month, entitled "The Apple in Ohio," has been received.—We endeavoured to find place for it in the present Number of our Magazine, and had prepared some comments to accompany it, but it arrived too late, and after our columns were already filled. We had previously sent to press an article upon the same topic from another, a correspondent in Maryland. We will give place to the article from our Ohio friend, on this subject, in our next.

Correspondents.—We are under great obligations to a host of correspondents, who, in remitting their subscriptions, think it worth while to say kind and friendly things of the *Farmer*, and words of encouragement to ourselves. It is hard to dismiss their letters, as the press of business obliges us constantly to do, without answer; and we are not willing to occupy our pages with matter which, however agreeable to our self-esteem, is not of sufficient public interest to have place on our pages.—Perhaps some day we will put a portion of them into an advertisement, by way of putting ourselves in a proper light before the "outside barbarians," whom we should be glad to have on our list of subscribers. To those who read the *Farmer*, we hope it will always have merit enough to commend it, and so speak its own praise.

Nursery Catalogues Received.—From John Saul, of Washington, D. C., his Catalogue of Fruit and Ornamental Trees, Shrubs, Roses, &c. From James Pentland, of Baltimore, Md., his Catalogue of selected Roses and other hardy plants. From the last named we have, also, received a circular descriptive of his new seedling *Bourbon* Rose "George Peabody"—"a dark violet purple, spotted and striped with vivid crimson." From Mr. Saul, a circular descriptive of the new seedling *Noisette* Rose "America," originated in the garden of Prof. C. G. Page, of Washington, D. C. We have received the very handsome catalogue of Fruit and Ornamental Trees, [1859] for sale by Messrs. S. Walker & Co. of Roxbury, Mass. It is quite a model catalogue, and in the hasty glance we have been enabled to give it, have detected the name of but one fruit—a Pear—that seemed to us incorrectly spelled. We have never seen the synonyme for the "Boston" pear spelled Phinneo before. From Messrs. W. M. Hoyt & Co., of the East Avenue Nurseries, at Rochester, N. Y., we have received their catalogue of Fruit Trees, Shrubs, &c.—accompanied by two very handsome coloured plates, one of the "Beurré Superfin," and the other of the "Howell," pear. These plates are evidently from the hands of artists in the employ of Mr. Dewey, the well known bookseller and publisher, at Rochester, and are admirably done.

Sulphite of Lime.—Not having been able to procure any of the above in this city, we wrote to a friend in New York, to ascertain where and at what price we could procure it; our wish being to test the efficacy of Prof. Horsford's recipe for preserving cider, lately published in this Magazine.—In reply, we have received the desired information, and we now give it to such of our readers as may desire to make use of sulphite of lime, in the manner recommended by the learned Professor. Sulphite of Lime may be procured by addressing F. B. Nichols, at office of C. A. Wood & Co., Brokers in East India Goods, 171 Pearl street, New York, at the following cash prices: in bulk, by barrel, 33 cents per lb.—by 50 or 100 lbs., 37½; and for less quantity 50 cents per lb.

Orders for Books.—We occasionally receive orders for books, our supply of which has, for the present, run out. In such cases they will be forwarded as soon as received. Stamps for postage must always accompany the orders—the prices named being the price at our office.

The Sorghum in North Carolina.—A friend has shown us a letter, in which his correspondent, writing on February 4th, from Durham's Depot, N. C., says:

"Our yield of fine syrup from about one-third acre of land, which would probably yield about 2 barrels of corn, was forty gallons. The mill (obtained from Messrs. W. W. Dingee & Co. of York, Pennsylvania,) operated finely; better than any on exhibition at our State Fair; and, according to cost, is decidedly preferable to any of them. Others had three cylinders, some grooved and some smooth, and would press as much; but the cost was double, and they required two horses to operate them. Our syrup continues good, and the scum that we took off, believing it injurious, was taken and preserved by a negro, and it has now turned to well grained sugar."

## ON MAKING SWEET POTATO BEDS.

*To the Editors of the American Farmer.*

GENTLEMEN:—According to your request, and my promise, to give you the mode of cultivating sweet potatoes in our section, I now proceed to give you our manner of making hot beds, and their after management.

We lay off the place intended for the bed six feet wide, running in length east and west; this we plough up to the depth of twelve inches, and throw out the dirt on each side of the intended bed, which leaves a trench six feet wide and one foot deep, which we fill up with leaves from the woods, corn stalks, or wheat straw; the latter of which is much the best, especially if they have been previously trodden a little by the cattle. This straw, (or whatever is used,) we have well trodden down and put upon the top of it fresh stable manure, about six inches thick, which must also be well trodden down, and packed with the back of a hoe, the operator walking backwards upon the manure at the time, so as to leave it level. The sides are next straightened up to their proper width, (six feet,) and dirt put up and packed against them as high as the manure. We then put on the top of the manure about two inches of good woods mould, which after being leveled, is ready for the slips which we place cross-wise of the bed, about an inch apart, and cover with fine woods mould about an inch in depth. We usually have fine straw, (which is best as it lays closer,) upon each side of the bed, with which we cover up the bed every night, or on the approach of rain, which is necessary to be kept off until the slips have sprouted well. After the slips have sprouted well and make their appearance above the covering, we add another inch of mould, and when they make their appearance through the second covering, we add one inch more of mould, which is deep enough to draw the sprouts well and make them root well. We do not cover the bed with straw after the fifteenth of April, unless there is indication of frost or of a very heavy rain. Some persons do not put as much dirt upon their stable manure as I have stated above, and some merely cover the manure; yet, I (and many others) think it necessary to have as much as two inches, for if it happens to be dry during the Spring, the slips being so near the manure, the sprouts will suffer very much; especially is this the case if ii is very dry in the month of May or June. Some other persons cover their slips when they put them in the bed, as deep as they intend them afterwards. That will do very well if the bed is a hot one and the season a dry one, but will not do if it is wet; for if wet and cold they get no warmth from the sun, and, consequently, they will rot. I lost about sixty bushels one year, by covering them deep when I put them out, and would have lost all the bed, if I had not raked off the dirt so that the slips could get the sun. We sometimes use rotten potatoes in making hot beds. The manner we use them is, to spread them upon the straw, about two inches thick, and instead of using six inches of stable manure, we only use an inch or so, and sometimes we do not use any stable manure. The hottest bed I ever had, was made of wheat straw, trampled a little by the cattle, with about two inches of rotten potatoes spread upon the top of it. In using rotten potatoes, however, it is necessary to either put more dirt on before putting down the slips, or put some straw or manure between the rotten potatoes and the slips, or else the slips might rot.

I have used Peruvian Guano upon my potato bed with very good effect, in making the sprouts grow rapidly. In my first experiment I applied it at the rates, (I suppose) of a thousand pounds to the acre. I applied it previous to giving the bed the third covering, which forced the sprouts more rapidly than I anticipated. I have applied it also just before a rain, directly upon the sprouts, after they had received their last covering of dirt, with as good effect as in the first case.

I have, at your request, thrown together a few ideas upon the making of hot beds, with us, and shall continue the subject of Sweet Potato cultivation, as practised in this section, if you think them worth the space they will occupy—wishing, however, that some more experienced and skillful cultivator had been called on for this communication.

I remain, yours, respectfully,

W. D. WEST.

*Elizabeth City Co. Va.*

P. S.—The reason we lay off the beds to run in length east and west is, that they may be sheltered in the north by bushes, if the place selected was not protected by the woods on the north.

We hope to hear further from our correspondent.

*Editors.*

## PROPAGATION BY CUTTINGS.

This is one of the most common and available modes of extending plants. A cutting is simply a part of a plant taken off and placed in a position to form roots, and become in all respects a living representation of the original from whence it was taken. The constitutional conditions, or special proportionate arrangements of the constituents of plants most favorable for the emission of roots, has not been determined. While, therefore, some will throw out roots under any conditions, others will do so very tardily under the most favorable circumstances.

Cuttings taken from extreme points of shoots will produce early flowering plants, and frequently a tendency to bushy and dwarf growth; those from side branches, incline to horizontal growth, and in some cases it is only by securing an upright shoot from the base of such side growing plants that upward growth is obtained. These peculiarities are not constant, and are not considered important, although occasionally useful for particular purposes.

The formation of roots is dependent upon the previous or immediate action of leaves; the best shoots therefore for propagation are those possessing a considerable portion of the organised matter consequent upon maturity, but in which the processes of growth are still in full operation; in other words, those shoots that have commenced to mature, but are possessed of healthy, active foliage.

Cuttings of young and succulent shoots, are immediately dependent upon the simultaneous growth of the stem for their successful rooting, the leaves must therefore be preserved in order to assimilate matter for root formation.

It is necessary to surround the cuttings by an atmosphere containing a uniform degree of moisture. All moist bodies, when placed in a dry atmosphere, lose moisture by evaporation. If the cuttings are subjected to aridity their contained sap will speedily be exhausted, and they will shrivel and die. Hence the practice of propagating in close-fitting frames, or covering with a

bell glass to insure the required atmospherical temperature and contained moisture.

Light in excess is equally injurious, shading is requisite from strong sunlight; care is required, however, that enough light be admitted to maintain a healthy leaf action.

Every one who has experience in this mode of propagation is aware that under certain conditions, cuttings will grow and increase at top without forming roots; while under others the same kind of cuttings will produce roots without indicating the slightest symptoms of growth by external buds. Heat is the great stimulus to the vital forces of plants, and when the atmosphere in which they are placed is of a higher temperature than the soil in which they are inserted, the branches are excited to growth. On the contrary, these conditions are reversed when the soil is a few degrees warmer than the air; roots are then encouraged while the stem may remain stationary. In propagating cuttings it is therefore a good general rule, to place them in the lowest average atmospherical temperature that they will endure, to retard upward growth, and on the other hand, to raise, by the application of artificial heat, the soil to the highest average temperature, in order to stimulate into activity the processes carried on in the vessels beneath the surface of the soil, and the more completely these conditions are secured, the greater the chances of success.—[W. Saunders in *Horticulturist*.

## LUNAR INFLUENCES.

According to popular belief, the moon not only presides over human maladies, but, like comets, is made responsible for a vast variety of interferences upon the weather, as well as upon organized nature. The circulation of the juices of vegetables, the qualities of grain, the fate of the vintage, are all attributed to its influence; timber must be felled, thh harvest reaped and gathered in, and the juice of the grape expressed at times and under circumstances regulated by the aspects of our satellite, if excellence be hoped for in these products of the soil. If these opinions were limited to particular countries, they would be less entitled to serious consideration; but it is a curious fact that many of them prevail, and have prevailed, in sections of the globe so distant and unconnected, that it is difficult to imagine the error to have proceeded from a single source. At all events, the extent of its prevalence alone rendered it a fit subject for investigation by M. Arago, who demonstrated that, so far as actual observation has hitherto afforded grounds for reasoning, there is no discoverable correspondence between the lunar changes and the vicissitudes of rain and drought, which can justify, or in any degree countenance, the popular belief so generally entertained.

The opinion that timber should only be felled during the decline of the moon, is acted upon with undoubting confidence in various countries, and is even made the ground of Legislation in France, with the belief that its increase causes the sap to ascend, and, if cut during the latter period, it will contain more sap, and will, therefore, be more spongy, more likely to be attacked by worms, more difficult to season, and more readily split and warped by changes of temperature. Hence, it would follow that the proper time for felling timber would be at new moon.—*Patent Office Report.*


## NEW ADVERTISEMENTS.

Acton, W. R. & Co.—Wants a Partner in Business.

Brackenridge, W. D.—Fruit and Ornamental Trees.

Broderick, W. E.—Singer's Sewing Machines.

Child, William—Poudrette and Charcoal.

Coale, Geo. B.—Hartford Fire Insurance Co.

Cromwell, Richard—Garden Seeds—Agricultural and Horticultural Implements.

Curry, Nephew & Co.—Comission Merchants and Beef and Pork Packers.

Coal Oil and Paraffine Company, of Baltimore.—Coal Oil.

Dingee, W. W.—Pelton's Triple Geared Horse Power.

Feast, John & Son—New and Rare Plants.

Fickey, Bros.—"The Harvest King"—Harvester.

Goldsborough, Martin—General Agency for Land, Stock, &c.

Griffith, R. R.—Guano and other Fertilizers.

Harris, Dr. T. A.—Virginia Farm for Sale.

Hooker, H. E.—The "Hooker" Strawberry.

Johnson, Ross—Patent Sash Balance.

Kettlewell's, John—Manipulated Guano.

Kimberly Bros.—Animal Compost or Cereal Fertilizer.

[N. B.—Another Advertisement previously inserted is unintentionally continued in the present No. The one to which the wood cut is attached is that to which alone attention is designed to be called.]

Linton, J. D.—Pelton's Iron Geared Thresher.

Malcom, P. & Co.—Guano of various kinds.

Montgomery, J. & Bro.—Rockaway Grain Fans.

Moore, A. O. & Co.—Elliott's Western Fruit Book.

Moore, A. O. & Co.—Darlington's Agricultural Botany.

Moore, A. O. & Co.—Downing & Sargent's Landscape Gardening.

Moulson, Saml.—Fruit and Ornamental Trees.

Mowbray, T.—Coal and Coal Oil Lamps.

Newman Bros. & Sons—Pianos.

Page, Portable Saw Mill—Horse Power.

Pentland, Jas.—The Peabody Rose.

Porter, R. B.—Hardware and Machine Findings.

Ray, B. F.—National Harvester.

Rapely, C. V.—Mammoth Prolific Lima Beans.

Reese, J. S. & Co.—Manipulated Guano.

Reed, Lyman—Potato Blight.

Rogers, C. B.—Am'd. Super Phosphate Lime.

do do —Early June and other Potatoes.

do do —Hancock's Extra Early Peas.

do do —Peach Trees.

do do —Clover, Timothy, Orchard Grass, &c.

Stevens, Geo. O. & Co.—Window and Door Frames.

Thorburn, J. M.—Flower Seeds.

Underhill, R. T.—Isabella and Catawba Grape Vines.

Warns, Clement—Chester Hogs—Bee Hives—Brahma Fowls.

Wheeler & Wilson,—Sewing Machines.

Whitelock, W. & Co.—Super Phosphate of Lime.

Whitman, E & Co.—Honey Blade Hungarian Grass and Garden Seeds.

## BALTIMORE MARKETS, February 22d.

In an article on the Grain Markets, in Oct., we predicted with confidence a very material rise in the Grain Market by the Spring, while the highest commercial authorities were insisting on still lower prices. We note now the fact of a rise from $1.40, the highest quoted price in November to 1.80, the highest point now.

*Wheat.*—Reds, we quote, at $1.30 to $1.45, according to quality. White, 1.60 to 1.65 for good to prime, $1 75 to $1.80 for choice.

*Corn.*—White Corn 72 to 75 cts.; Yellow 73 to 76.

*Oats.*—Oats we quote Maryland and Virginia, 48 to 50; Pennsylvania, 50 to 52 cts.

*Rye.*—Maryland 80 to 85; Pennsylvania 88 to 89.

*Flour.*—Howard street Superfine $6 00; Ohio do. $6.00; Howard street Extra, $6.50; Ohio Extra, $6.25; Baltimore ground Family Flour, $8.50, Extra, $7.50.

*Tobacco.*—There is little movement as yet in the Tobacco Market, there being not much new arrived. The sales thus far, we learn, indicate about $6.50 average for Maryland. We quote Inferior $4 to $7.52; Superior, $7.25 to$11.00. Bay Tobacco, Tips $4 50 to $5.50; Seconds $5.50 to $7.00; Spangled $7.00 to $12.00; Fine Yellow, $12.00 to $16.00. Ohio Tobacco, common Green, $5 50; common Spangled, $6 50; common to middling Red Spangled, $8.00 to $10.00; good to fine Yellow $11.00 to $15.00; Kentucky $6.00 to $6.25 for Leys; $7.50 to $8.50 for medium leaf, and $9.00 to $12.00 for wrappers.

*Cotton*—We quote Cotton at 11¾ to 12¾.

*Seeds.*—Prime Clover Seed, retail, $7.00; Timothy $2.25; Orchard Grass $1.50; Herds Grass $1.-25; Black eyed Peas $1.50; Cow Peas $1.26; Flax seed $1.40 to $1 45 cents.

*Wool.*—Unwashed, 26 to 27 cts., tub washed 31 to 35; No. 1 pulled, 29 to 33; Merino pulled, 33 to 36; quarter to half blood, 37 to 39; half to three-quarters 39 to 46; three-quarter to full blood, 46 to 50; Extra, 53 to 55, (all washed.)

*Cattle, Sheep and Hogs.*—The supply of Beef has been recently very light, and there is a considerable rise in price in consequence. We quote Beeves at $4.50 to $5.75, averaging $5 50 on the hoof.—Hogs $8 to $9, nett, per hundred pounds. Sheep $3.50 to $5.00.

*Guano.*—Peruvian Guano is selling at $62.50, delivered on vessel for Maryland use; and $63.50 to go south of Maryland. The agent refusing to sell a pound here for the Southern Market, and requiring the dealers to go to New York to fill their orders for any southern port.

Best Brown Mexican (AA) we quote at $24.00 in bbs.; White Mexican (A,) ground $30 00. The lower grades of Mexican from $15 to $20. Elide or California Guano $42 per ton of 2,000 lbs.—Manipulated Guano $47. Super-phosphates $40 to $45 per ton of 2,000 lbs.

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